The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

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Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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A Chemistry House at Last

GREAT BRITAIN—and, indeed, the Empire—is in possession at last of a real Chemistry House in neighbourly proximity to and successfully standing comparison with such other symbols of Country and Empire as Westminster Palace and the Abbey. It occupies, as one competent observer says, the site of old riverside houses and taverns, and seems like a projection of Whitehall at its grandest into the working riverside quarter. It is not the product of any joint effort on the part of our numerous chemical societies. It has not arisen from the leisurely meditations of chemical councils and committees. It is a monument to the dynamic power of one mind, surrounded by minds of a like order—Lord Melchett and his colleagues of Imperial Chemical Industries. For no sooner was their decision taken to build Imperial Chemical House than the work started at once, and proceeded at such a pace that in less than two years this unique addition to the commercial architecture of London is in occupation of the staff. For directors, architect, contractors, and workpeople it is a triumph of design and constructional achievement, of which they may all feel proud.

Stately and magnificent as Imperial Chemical House undoubtedly is, it is absolutely free from any element of swagger or cheap display. The work, whether one considers the kitchen equipment, the offices for the working staff, or the superb furnishings of the board and directorate apartments, follows one standard—the best available, and that standard is as evident and has been as jealously observed in the one case as in the other. Here, henceforth, in this magnificent home British chemistry will have its centre of power. To this centre will gravitate inevitably the highest fruits of research, to be promptly assayed as to their industrial possibilities, and, where possible, turned into products for the service of the Empire. If it be true that Imperial Chemical House rises from the river like a building that knows its own mind, it serves as a symbol of a power behind that equally knows its own mind, that in the short space of two years has made almost incredible advances, and that has a future programme to which scarcely any limit can be fixed. The creation of a new power of this order must mean a certain reorientation of British chemical interests. Here and there, some minor interests must suffer in the march towards efficiency, but the total effect, in the long run, must be for the good of the nation and of the Empire. Imperial Chemical House not only expresses the spirit and power of Imperial Chemical Industries; in its scale and dignity it is a prophecy of the part it is designed to play in national and imperial industry.

A Successful Fair

THE British Industries Fair of 1929, which closed yesterday (Friday) after a fortnight's run, is reported to have been in many ways the most successful of the series. The Chemical Section, in which our readers are more immediately concerned, while it followed of necessity the lines of previous exhibitions, bore ample evidence of the advances made in British chemical production and its constantly extending range. Many of these new developments were mentioned in our notes on the exhibits last week, and others are added now. There is less questioning than formerly as to whether it pays to participate in such an exhibition of chemical wares, for the science of publicity is gradually coming to be better understood, and immediate business is not always the chief objective. There is, however, evidence to show that many of the chemical exhibitors will take away a comfortable pocketful of orders, with a yet larger number of inquiries that may materialise into orders in the future. The Chemical Section of the Fair was once again a creditable and representative synopsis of British chemical industry generally, and Mr. Davidson Pratt and his colleagues of the Association of British Chemical Manufacturers are to be congratulated on their successful arrangements.

German Chemical Interests in U.S.A.

THE productive Berlin correspondents who some time ago were busily engaged in reporting every few days new German chemical enterprises and achievements have been quiet of late. The announcement is now made, however, that the I.G. Farbenindustrie contemplates an invasion of the United States and the establishment of works of its own there. The usual United States chemical attitude is that, while it is undesirable to allow the home market to be swamped by foreign competitive wares, there is not the same objection to foreign interests establishing their own works inside the country, since they thus become a part of American industry. This latest rumour appears partly to be based on the arrangements that Dr. Bosch and several of his fellow directors are making for an extended visit to the United States with the general object of organising German interests out there. The German trust is already understood to be considerably interested in the American film industry, and there are suggestions that this is to be extended and new enterprises introduced. All this may be true, but so much has been heard of such developments from time to time that one can afford to wait for authoritative news.

Reference has already been made in these columns to the establishment of a Swiss company known as the Internationale Gesellschaft für Chemische Unternehmungen (having the very significant abbreviated title I.G. Chemie of Basle), in which the I.G. has large interests and probably complete control. The objects of this organisation are to deal with the foreign interests of the I.G. It has lately been suggested rather frequently that the I.G. intends shortly to seek new capital, in part at least abroad, and possibly this is the reason for the latest reports.

The Right Spirit

A COMMUNICATION of considerable interest reaches us from Haughton's Patent Metallic Packing Co., Ltd., well-known for their "Ironac" acid-resisting products and chemical plant. Mr. S. J. Tungay, a director of the company and himself an experienced chemical engineer, writes on behalf of the firm: "We receive several inquiries from Holland as a result of advertisements in THE CHEMICAL AGE. In view of the fact that H.R.H. the Prince of Wales urges manufacturers to present their products in languages understood by customers abroad, we are sending you herewith special copy for our next advertisement in your journal, to be set up in Dutch. We feel sure you will be in agreement with an occasional innovation of this kind." We certainly are. It means alertness, a proper spirit of adventure and experiment, a willingness to vary stereotyped methods, a sense of modern ways and means of promoting business. It is by live activities of this kind that firms keep their place in a fiercely competitive world. We trust that the Dutch consumer will respond to the compliment paid him by deciding to test the merits of British plant. It is the test that British producers most desire and the one that—since "quality" is still the sovereign characteristic of British wares—ultimately proves their best advertisement.

Books Received

THIRD REPORT OF THE GAS CYLINDERS RESEARCH COMMITTEE (Alloy Steel Light Cylinders). Department of Scientific and Industrial Research. London: H.M. Stationery Office. Pp. 74. 2s. 6d.

FOURTH REPORT OF THE GAS CYLINDERS RESEARCH COMMITTEE (Cylinders for Liquefiable Gases). Department of Scientific and Industrial Research. London: H.M. Stationery Office. Pp. 151. 4s.

OFFICIAL DIRECTORY OF THE BRITISH CHEMICAL PLANT MANUFACTURERS' ASSOCIATION. 1929. London. Pp. 120.

The Calendar

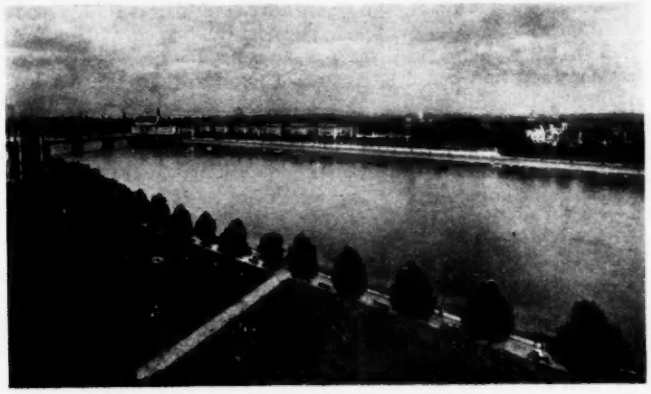
Mch.		
4	Society of Chemical Industry (London Section): "Recent Advances in the Chemistry of Polysaccharides and Allied Compounds." Professor A. R. Ling. 8 p.m.	Burlington House, Piccadilly, London.
4	University of Birmingham Chemical Society: "Early Experiments on the Synthesis of Closed Carbon Chains." Professor W. H. Perkin.	University, Birmingham.
5	Hull Chemical and Engineering Society: "Wireless at Sea." Professor L. S. Palmer. 7.45 p.m.	Grey Street, Park Street, Hull.
6	Society of Public Analysts. Annual General Meeting. 8 p.m.	Burlington House, London.
6 & 7	Institute of Metals: Annual General Meeting. 10 a.m.	Institution of Mechanical Engineers, Storey's Gate, London.
7	Chemical Society. 8 p.m.	Burlington House, London.
7	Oil and Colour Chemists' Association. Discussion on "The Painting of Cement and Plaster." 7.30 p.m.	Painters' Hall, Little Trinity Place, London.
7	Society of Chemical Industry (Bristol Section): Annual Meeting. 7.30 p.m.	University, Bristol.
7	Society of Dyers and Colourists (Midlands Section): "Some Modern Industrial Applications of Chlorine." H. Raymond Feeney. 7.30 p.m.	University College, Nottingham.
8	Oil and Colour Chemists' Association (Manchester Section): "A Few Notes on the Fastness to Light of Lake Colours." S. T. Kinsman.	Milton Hall, Deansgate, Manchester.
8	Leicester Literary and Philosophical Society: "Science in Antiquity." Dr. J. Newton Friend. 7.30 p.m.	Secular Hall, Humberstone Gate, Leicester.
8	Institute of Metals (Sheffield Section): "Progress of Electric Furnaces." D. F. Campbell and W. S. Gifford. 7.30 p.m.	University, Sheffield.
8	Society of Chemical Industry (Liverpool Section): Annual Meeting. "Boiler Feed Water." L. O. Newton. 6 p.m.	Muspratt Theatre, University, Liverpool.
11	Institute of Metals (Scottish Section): "The Anodic Treatment of Aluminium for Corrosion." M. Parkin. 7.30 p.m.	39, Elmbank Crescent, Glasgow.
11	Ceramic Society: "Factory Floors." F. Heron Rogers. 7.30 p.m.	North Staffordshire Technical College, Stoke-on-Trent.
12	Institution of Petroleum Technologists. 5.30 p.m.	John Street, Adelphi, London.
13	Society of Chemical Industry (Glasgow Section): "Bi-centenary Address on Joseph Black." John A. Cranston.	Glasgow.
13	Institute of Metals (Swansea Section): "Corrosion, with Special Reference to Non-Ferrous Alloys." A. G. Ramsay. 7 p.m.	Thomas' Café, High Street, Swansea.
13	Institute of Fuel: "The Industrial Use of Gas." F. W. Goodenough.	London.
14	Institute of Metals: Conversazione and Exhibition. 8 p.m.	Science Museum, Exhibition Road, London.
14	West Cumberland Society of Chemists and Engineers: "The Preparation of Coal for Sale." Dr. Briggs. 7 p.m.	Workington.

Views of Imperial Chemical House

Right—East-South East view of Building.

Below—South East Doorway.

Above—View from the Grand Colonnade, 6th Floor.



Left—Panorama from Top of I.C. House.

Opening of Imperial Chemical House

A First Tour of Inspection

THE illustrations that appear on pp. 201 and 203 of this issue give some idea of the external dignity and vast dimensions of Imperial Chemical House, the new general headquarters of Imperial Chemical Industries, Ltd., and of the combined beauty and efficiency of its internal furnishing, design, and equipment. To realise, however, its full impressiveness, the ease with which the great white stone and marble structure falls into its historic Westminster setting on the banks of the Thames, and the success with which this, London's latest and largest type of commercial building stands comparison with its near neighbours the Houses of Parliament and the Abbey, one must see it for oneself, preferably in good perspective from the Lambeth side of the river. The verdict would at once be that Imperial Chemical Industries had made an addition of the highest interest to the architecture of London, and had achieved something new and unprecedented in scale with the happiest effects equally from the architectural, utilitarian, and decorative points of view. One might almost say of Sir Frank Baines, the architect, as was said of the creator of St. Paul's, "If you want to see his monument, look around."

When on Friday of last week the doors of this great edifice were thrown open for the first time to a party of visitors, the entrance hall, with its strikingly patterned floor of white and black marble, its restful daylight illumination, its good ceiling, and its fine lift doors and staircase rails of silveroid, a copper-nickel mixture that gives a rich dull silver effect, promised something of quite uncommon effect. The promise during a tour of some three hours of the building was fully redeemed, Sir Frank Baines, the architect (who had already a high reputation as Director of H.M. Board of Works, when he was chosen for this responsible work) was present to receive the guests and his breezy verbal descriptions, as he conducted them over the building, brought out with clearness the characteristic features of design, workmanship, materials, and so forth. They would, in fact, could one have preserved them as they were spoken, have constituted an admirably discerning and balanced estimate. One must be content here to reproduce such points as may be recalled.

It became clear at once that those responsible for the construction of Imperial Chemical House had had no ordinary task. The pace at which the work was required to be done was in itself a formidable problem. Work began in earnest on the day following the decision to build. The building was required to be ready for occupation in two years, and much of the planning had to be done during the actual progress of construction. Yet so well has everything been foreseen that it would be difficult to see where the most leisurely consideration could have produced any improvement. Imperial Chemical House was erected in less than one-third of the normal time required for a building of such magnitude. The preparation of plans for a normal contract could not be undertaken, and a schedule of prices on a competitive basis was agreed with John Mowlem and Co., Ltd., the contractors. Very little information could be given at the commencement as to the clients' requirements, and design and calculation of the work had to proceed simultaneously with the work. This necessitated very close co-operation as regards structural steelwork, architectural features, and engineering services, as some latitude had to be allowed in the final requirements. At the same time the necessary statutory approvals under the London Building Act had to be obtained, but in spite of many difficulties progress was such that five months before the expiration of the two years allowed for building, five floors of the main building were actually occupied. The construction of the extension was not started until March, 1928, but four floors of this were available with the remainder of the main building early in February, 1929.

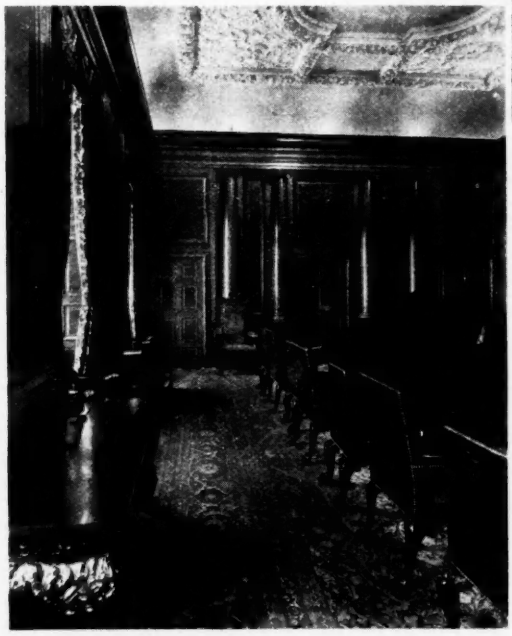
The rate of progress, it will be recognised, was remarkable. The main contractor aimed at laying an average of 14,000 sq. ft of floor per week. An output of 27,000 was actually reached, subsidiary contractors keeping pace. Work was practically continuous on the site day and night from the inception, and the amount of mechanical and other equipment used was greatly in excess of normal. Temporary heating for the drying out of the building was very costly, but was fully justified on economic grounds. The bulk excavation on the site began at Christmas, 1926. Piling was started in the middle of January and was completed in six months. The first sections of steel framework were erected in April, 1927, and in three months the stanchions had reached eighth floor level, while the ground floor of the Millbank front was completely laid. In the autumn of 1927 the fifth floor was covered with asphalt forming a temporary impervious roof and the walls were completed as far as possible to close the building in and protect it from the weather. All window openings were closed with fabric. In one year from commencement the Millbank facade was practically completed and the other main fronts were closed in up to fifth floor level. Ninety different firms were engaged on the site: their activities were regulated and co-ordinated at weekly conferences at which progress was systematically reviewed by the architect and the necessary instructions given. This system of control was mainly responsible for the success of the stupendous undertaking. No fewer than 58,000 drawings were issued for the guidance of contractors.

It was interesting to hear Sir Frank Baines's repeated tributes, as he described the panelling and ceilings of some of the more beautiful rooms, to the quality of British craftsmanship which had been responsible for all this delicate work. Some people seemed to think, he said, that fine craftsmanship belonged to the mediæval past, but he could testify that, when he was given the opportunity, as he had been in this case, the British craftsman of to-day could turn out work the equal of the best done in any period or any country. It was interesting, too, to hear how the building had surprised some Americans. They had expected a structure of such size to be done on standardised lines—thousands of windows all exactly alike, and other things to match. Sir Frank was obviously proud of having saved Imperial Chemical House from such a soulless uniformity, and of having allowed, in spite of the pace at which he had to work, a liberal margin for handwork. In describing one of the corridors, for example, he pointed to the clean, highly-glossed walls. "Sprayed?" asked a visitor. No, just old-fashioned high-gloss paint applied by hand with an old-fashioned paint brush. And very satisfying the effect looked. One of the features with which the architect was justifiably pleased is the lighting. Artificial daylight is used throughout, and it is believed to be the first building in the world to use this type of lighting exclusively. The number of windows in the building is 1,370 and the area of glass—most of it Vita glass—45,400 sq. ft. It is stated that the

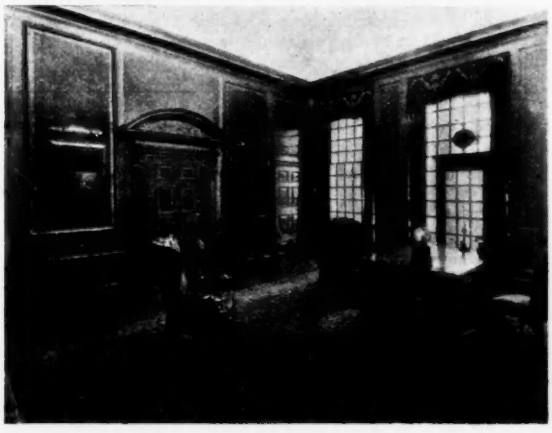
Views of Imperial Chemical House

Right—Staircase and Hall.

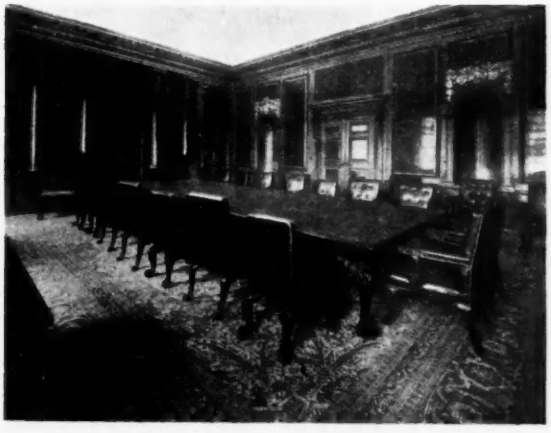
Below—Section of Board Room.



The President's Room (Sir H. McGowan)



The Chairman's Room (Lord Melchett)



Another View of Board Room.

flood lights in the interior courts will be visible on a clear night for at least ten miles. The heating is on the patent panel system, which provides pleasant and healthy conditions due to radiation from large surfaces of low temperatures that provide adequate heat without raising the temperature, as Sir Frank remarked, to the stewing conditions found in American hotels. The general ventilation is by mechanical extract, and the rates of air-change per hour vary from three in offices to 25 in the kitchen. Ozone apparatus, made by the Standard Ozone Co., is installed to provide ozonised air in the basement, also in the directorate suite and the main refectory.

By the time we had gone over the first and second floors, these and many other points had been explained, and we were sufficiently prepared to see the splendours of the sixth floor, on which the directors' suites are placed, away from the noise and bustle. Several of the rooms open on to the great colonnade from which magnificent river views are obtained. Here in the corridor we were received and welcomed by Lord Reading and Mr. Henry Mond. Lord Reading, with a simplicity of words and manner little suggestive of a former great judge and advocate, expressed a wish that we should be pleased with what was to be seen. Mr. Henry Mond added—in a serious tone that suggested he attached importance to the point—that the beauty of the building and its appointments was the result rather of fine craftsmanship than of extravagant material. For its size Imperial Chemical House was one of the most economical buildings erected since the war.

Some idea of the beautiful furnishings of the rooms on this floor may be gained from the illustrations of the interiors. Lord Reading's room, into which we were first shown, struck one rather like a vaulted temple. It is unique in the fact that its panelling has been entirely carried out in Indian laurel, a wood of striking beauty when used in a way to show its unusual figure, and one which, it is thought, has rarely if ever been used in this country before. Lord Melchett's room is in the Wren style, panelled in Honduras mahogany, veneered with English walnut, from trees cut in the historic Knole Park, Sevenoaks. The personal pieces it contains include a grandfather clock, a fine walnut antique, and a lacquer table and mirror. The board room might be a meeting place for any Cabinet, with the chairman's high-backed red velvet chair, a copy of a model in the possession of the Cutlers' Company, and its great table designed after the famous Treasury table. The wall carvings in lime wood, on walnut panelling, recall the style of Grinling Gibbons, and justify all that Sir Frank Baines said in praise of British craftsmanship.

It would be easy to fill several pages with interesting facts about the new building, but there is space only for a brief selection. The general architectural order of Imperial Chemical House is English Renaissance. It rises from the river front nine floors high in the main part, and contains 700 rooms; the total volume of the building is over six million cubic feet, and the floor area 370,000 square feet. The length of the corridors is between two and three miles. The ground floor elevation of the main facade is in blue-grey granite. Above this the building is entirely in white Portland stone; the white stone roof is quite unique. The foundations have been designed to carry a total load of 150,000 tons. If all the concrete piles used in the foundations were placed end to end they would extend for 7½ miles. There are 5,000,000 bricks in the building; 1,373 steps in the stairs; 63 drinking fountains, 14 lifts, about 43 miles of cable for the electric light, and six miles of cable for the electric clocks; 1,000 Post Office telephones, and 1,000 inter-communication telephones. Two artesian wells, which will provide the building with its own water, are estimated to supply, if required, over 108,000 gallons daily. There are 50 miles' length of piping for heating and domestic water services. In the basement are a gymnasium fitted with dressing-rooms and shower-baths; two squash racquet courts, a badminton court, and a rifle range of twenty-five yards in length. On the eighth floor is a refectory where a total of 1,500 lunches an hour can be served. There are also separate dining-rooms for the chairman, directors, and other high officials. In eight small dining rooms, where business conferences can be carried on in seclusion, a total of 742 lunches can be served at the same time.

There are many notable decorative features in the building. The large keystones on the front are each surmounted by portrait heads of distinguished figures in chemistry—Liebig, Priestley, Dr. Ludwig Mond, Lord Melchett, Sir Harry McGowan, Lavoisier, Mendeleef and Cavendish. Two portrait heads representing Dalton and Berthelot also appear on the Smith Square front. The main entrance doors, worked by electro-magnetic control, will have a series of decorative panels. One of these will be a representation of a lecture by Faraday at the Royal Institution. In discussion with Sir William Bragg it was gathered how immensely Faraday's work had affected the processes followed in the various great chemical industries, and opportunity will be taken in the modelling of this very difficult panel to bring forward in the figures contemporary savants in the scientific world. Among the many notable features of the sixth floor is a beautiful corridor carpet, a reproduction of one at Sion House, designed by the elder of the Brothers Adam.

The visit of inspection, intensely interesting in any case, was made the more pleasant by the excellence of the arrangements. In addition to Sir Frank Baines, who proved an admirable chief guide, the convenience of the guests was efficiently attended to by a staff of high officials, among whom one noticed General Duncan, Mr. J. Conway Davies, Commander Ellis, and others. Before leaving, a very cordial expression of thanks was conveyed to Sir Frank Baines and his colleagues.

The Directory of Chemical Plant

Policy of the Association

LAST week reference was made to the new official directory issued by the British Chemical Plant Manufacturers' Association. The introduction, written by Mr. J. Arthur Reavell (of the Kestner Evaporator and Engineering Co., Ltd.), who is chairman of the Association, is of interest.

"The Association," says Mr. Reavell, "consists of *bona fide* manufacturers. It is not itself a trading concern, and makes no profit on any business transacted by its members. It does not favour one member to the detriment of another, nor does it interfere in any manner with the business arrangements of its members, or discourage in any way their dealing direct or through merchants or other established channels. This Directory is intended to place before chemical manufacturers and other users of chemical plant the various products which are manufactured by the members of the Association.

"It will be seen from perusal of this Directory that British chemical plant manufacturers are able to supply the best and latest types of plant required for any chemical operation. The latest scientific principles are embodied in the designs and the workmanship is in every case of the highest quality. Would-be buyers can, therefore, be sure that all their requirements will be met in full, and that every satisfaction will be given. Further, the Association has been, and is still, active in the standardisation of plant where such standardisation is possible and desirable, and in the study of the most suitable constructional materials for use with the various chemicals—many of them corrosive—with which the plants have to deal. Where intending purchasers have any difficulty in obtaining a particular article, they are requested to communicate immediately with the Association, which will at once place the inquiry before manufacturers likely to be in a position to execute the order in question.

"The Association is prepared to advise on all matters relating to the purchase of chemical plant, and inquirers may rely upon the best expert and manufacturing opinion being obtained for their benefit."

Copies of the Directory may be obtained from the Association at 166, Piccadilly, London, W.1.

London Chemists Dine Together

The Need of Advertisement and Co-operation

THERE was a full attendance at the eighth annual dinner of the London Section of the British Asscciation of Chemists on Saturday evening. Miss Winifred Wright (chairman of the section and an active worker for some years) presided, and those present included Lord Riddell, Dr. E. F. and Mrs. Armstrong, Mr. C. S. and Mrs. Garland, Mr. S. Reginald Price (vice-president of the Association) Mr. James and Mrs. Stewart, Mr. E. Richards Bolton, Mr. H. T. F. and Mrs. Rhodes, Brig.-General C. M. Ryan, Dr. and Mrs. Dunstan, Mr. C. B. Woodley (secretary), etc.

In welcoming the guests, Miss Wright remarked that the name British Association of Chemists was peculiarly suitable to their society, where friendly intercourse between the many and extremely varied branches of the profession was aimed at. It was lack of association and intercourse between chemist and chemist and between chemist and the general public that was largely responsible for the lack of internal organisation and external appreciation.

The Uses of Advertisement

Acknowledging the toast of "The Guests," proposed by Mr. S. R. Redgrove, Lord Riddell began by at once declaring himself to be a convinced trade unionist; it was not good policy, however, to overdo a good principle, and even trade unionists must recognise that if they killed the goose that laid the golden eggs, there would be nothing left to trade-union about. (Laughter.) He was always very nervous when appearing among learned scientific people, but a remark by Dr. Armstrong had partly reassured him. To his remark that it must be a very important thing to be a doctor of science, Dr. Armstrong at once replied, "Not at all. I never use the title except when I want to get a trade discount." (Laughter.) There was, he was confident, no class of persons who had done more for human welfare than chemists, but like other interests in this country, they were deficient in the art of advertising themselves. It might be imagined from what one read that there were no British scientists and that all the real discoveries came from America and France. That was not true. The misconception was largely due to the fact that we did not advertise ourselves. The least that could be done was to let the world know that this country was still producing as great scientists as in the past. In proportion to population this country had probably produced many more distinguished men who had made great discoveries than any other nation had done. Unless a great nation like ours took care to carry its scientific, manufacturing, and commercial flag high throughout the world, it would lose in the race which was now taking place between all great countries. People in this country were still too apt to sneer at advertising and to imagine that because it was not necessary fifty years ago it was not necessary to-day. They wanted to get rid of that false modesty and to let the world know something of British products and attainments. (Applause.)

The Coming "Chemical Age"

Dr. E. F. Armstrong, proposing the toast of "The Association," said that in arranging their chemical knowledge they must have regard to the point of view of the other man who sought their assistance. Chemists to-day did not make as much use as they might of the information and knowledge they possessed. It was almost disheartening to him to find, on going through applications for appointments, how many chemists were unable in their applications to make any show of their abilities and attainments. There was no profession which had a greater future and a greater task before it than that of chemistry. During the last few years they had come into their own, but they were only at the threshold of what was to be a chemical age. There were not nearly enough chemists now to meet the demands which would come on the profession. Like a good many other things, automatic machines could only be galvanised into activity by the placing of a penny in the slot. Unlike the machine, with the chemist it not infrequently happened that the penny was not placed in the slot until afterwards. (Laughter.) One thing the automatic machine did which was worthy of attention: it delivered its goods neatly wrapped up and ready for use. The chemist, he felt, often lacked that quality. He must present his information in a suitable form. The business man did not want an "if" or a "might be." He wanted facts he could work upon. With Lord Riddell he agreed that if the chemist was a man of science first, as he must be, he must be a man of affairs also, carrying his message out into the world. He felt that the Association had done a great deal to encourage this attitude and the whole profession was much more alive to this necessity than formerly.

Mr. H. T. F. Rhodes, in responding, remarked that industry did not always understand science even to-day. The beet sugar factories were still, in some cases, paying their chemists 1s. 3d. an hour for a 12 hours shift 7 days a week. That was false economy, bred of the kind of ignorance that only educational propaganda could dissipate.

The Social Spirit

Mr. S. R. Price, chairman of the Council and vice-president of the Association, remarked that the social side of the Association's activities deserved reference. Often it happened that the friendlier the spirit the better the business done. The Association had acted upon this principle with considerable success. The presence of Lord Riddell as their guest that evening was further evidence of that success, and he hoped that concurrently with its growing achievements in the professional sphere the Association would foster and stimulate that spirit of good fellowship which was the basis of real solidarity.

In proposing "Kindred Societies," Mr. C. S. Garland said that the collective resources of the chemical societies, both financial and administrative, were very considerable. If they were more closely co-ordinated, the results would be beneficial not only to the profession but to the community at large.

In replying, Mr. J. Stewart, past-chairman of the London Section of the Institute of Brewing, reviewed the work of the scientific societies and emphasised the value of the research work that was being carried on under their auspices. Mr. E. R. Bolton also replied.

The toasts concluded with that of "The Chairman," proposed by Mr. A. J. C. Cosbie.

I.C.I. Directors and Trade Unions

MR. HENRY MOND presided last week at a conference held at Imperial Chemical House between members of the board and representatives of trade unions, Lord Melchett being absent owing to the illness of Lady Melchett. Mr. Bramley introduced the deputation, and was followed by Mr. Ernest Bevin, Mr. J. R. Clynes, M.P., Mr. Beard (Workers' Union), and other members, who submitted certain considerations arising out of the company's labour policy in regard to which some of the unions were not quite clear. The chairman promised that the points put forward would receive the most careful consideration and a further communication would be addressed to the unions. Those present included:—Lord Reading, Lord Birkenhead, Mr. H. J. Mitchell, Mr. J. H. Wadsworth (directors), Mr. P. C. Dickens (secretary), Mr. W. A. Akers (technical department), and Mr. Lloyd Roberts (chief labour officer). Among the representatives of the unions were Mr. J. Beard (president of the Workers' Union), Mr. R. Coppock (general secretary of the Building Trades Operatives' Federation), Mr. H. H. Smethurst (secretary of the A.E.U.), Mr. A. B. Swales (A.E.U.), Mr. Will Thorne, M.P. (general secretary of the General Workers' Union) and Mr. W. T. Kelly, M.P. (Workers' Union).

Royal Society Candidates

CANDIDATES for election into the Royal Society recommended by the Council include the following:—

Dr. A. J. Allmand, professor of physical and inorganic chemistry at King's College, London, who has carried out investigations on various aspects of physical chemistry, electrochemistry, etc.

Mr. C. N. Hinshelwood, Fellow and Tutor of Trinity College, Oxford, who has carried out investigations on physical chemistry.

Dr. H. S. Raper, professor of physiology in the University of Manchester. His published researches have dealt with biochemistry physiology.

A Retrospect of the British Industries Fair

The Trend of Developments

The British Industries Fair, the chemical section of which was held at the White City, London, opened on Monday, February 18, and closed on Friday of last week.

THE chemical section of the British Industries Fair is never one to which the general public swarms in its millions. An orderly array of labelled specimens, chemical plant, and the various products into which the work of the chemist enters, does not attract as much attention as a noisy loud speaker or gramophone; and it is impossible for the industry to popularise its wares by offering the public free samples of, say, ammonium sulphate or potassium cyanide. The main function of such a section as the chemical one is to attract buyers, either present or prospective, and, in a very important degree, to act as an educational influence. From every point of view, the section is therefore fortunate in that it is much more compact and unified than any other section. For this, credit is due to the Association of British Chemical Manufacturers, the organisers of the section.

DEXINE, LTD.'S, STAND.

While it is obvious that those who exhibit would not do so year after year if they were not satisfied that they were getting their money's worth, yet it is well known that it is sometimes difficult to trace actual business obtained from the Fair to its real source. A future buyer who walks round a stand carries away with him, perhaps, a favourable impression of a certain product—an impression which may be translated in many months' time into an order. Such an order often comes to the firm concerned, without any reference to the Fair. This shows the extreme difficulty of appraising the value of the Fair in terms of immediate hard cash, and the importance of looking at it in a broad-minded way. It is, however, a hopeful and encouraging sign that some business does result immediately or traceably. Some firms showed long lists of promising inquiries, containing a fair proportion of actual orders, and there is always the possibility that one good order or inquiry may have results which will pay almost immediately for the actual expense of exhibiting.

A number of things, taken together, indicate the more optimistic tone which now prevails in the industry. Various exhibitors spoke of being very busy. In one case, it was stated that certain products, formerly in small demand and made in small batches, were now made in much larger quantities, with a view to laying down a stock sufficient to last for, say, a year. Stocks, however, were often exhausted long before the expected time. Facts such as these, together with the evidence of steadily improving trade returns, indicate that in the present year the industry may well look forward to a time of prosperity.

AN industrial correspondent writes:—"Everyone who has visited the British Industries Fair at the White City will heartily endorse the opinion expressed by the Parliamentary Secretary for the Department of Overseas Trade (Captain Douglas Hacking) on the occasion of the official luncheon on Tuesday, February 19, that the Fair was—cold!!! The unusual severity of the weather and the difficulty of adequately heating a building like the White City, coupled with an unfortunate underestimate of the requirements of electricity for lighting and heating for which the unexpected cold spell was largely responsible, made the lot of the exhibitors and the visitors a very hard one. In the chemical section, with practically every stand unheated, the exhibitors have faced the arctic conditions with a cheerful fortitude and courage which augur well for the future success of the industry.

"The section has more than fulfilled the most optimistic expectations, and is one of the most attractive parts of the Fair. Everyone connected with the industry realised the difficulty of making a display of chemicals which will attract and interest the layman, but the ingenuity of the exhibitors has enabled them to triumph over such difficulties, and some of the stands are masterpieces of artistic arrangement. As indicated by the notes which this journal has already published the section was larger than it was last year, and is representative of all branches of the industry.

"In spite of the severe cold, the attendance at the Fair was greater than last year, though foreign visitors were fewer, no doubt owing to the discomforts of rail and sea journeys in such weather. Though trade varied considerably among the exhibitors, there is, generally speaking, a feeling of satisfaction in the chemical section with the orders and inquiries as compared with previous years, a state of affairs which must be regarded as reassuring, in view of all the adverse conditions.

BOAKE ROBERTS & CO.'S STAND.

"A novel feature which is likely to be of even greater importance in the future, and which will undoubtedly be extended to other sections, was the conducting of organised parties of chemistry teachers and students from Universities and technical colleges round the section, where the salient

features of educational value in the various exhibits were explained by the experts on the stands. This was arranged by the Association of British Chemical Manufacturers. There were requests from more teachers and students than it was possible to deal with, and the visits have been appreciated by the exhibitors, and especially by the visitors, most of whom have written expressing their satisfaction, and requesting that these visits be made a permanent feature of future Fairs. It is felt that such arrangements must be of mutual benefit to our educational establishments and to the industry, and the initiative taken and the example set by the Association are deserving of the highest commendation."

I.C.I. at the Ideal Home Exhibition

THE use of colour in the home, whether applied by professional or amateur, is expressed in practical form by the exhibits shown on Stand No. 78 at the Ideal Home Exhibition, on the ground floor, main hall, at Olympia, London. The stand is occupied by Naylor Bros. (London), Ltd., a company associated with Imperial Chemical Industries. The stand has been divided into two sections appealing respectively to architects and professional decorators and the householder. In the section appealing to the householder, demonstrations of the application of brushing Belco, the cellulose finish for handy home uses, will be carried on throughout the period of the exhibition, and an interesting display of panels showing the various fancy effects which can be obtained with this material and also examples of the uses of Fastain, the combined varnish and stain, will also be found. In another section there will be applied examples of the application of "Petrumite" imitation stone paint, "Supermatt" flat paint, and "S.E.G." paint, which is offered as the most durable paint and which meets H.M. Office of Works' specification for two-coat work. The furniture in this section will be finished in "Belco" wood finish, a cellulose finish which is superior in durability and equal in appearance to french polish.

Reconstituted Cream: Proposed New Regulations

A STANDING committee of the House of Commons on Tuesday passed without substantial amendment a Bill promoted by the agricultural interest, to regulate the sale and manufacture of "reconstituted cream." This commodity is defined in the Bill as "an article of food resembling cream, and containing no ingredient which is not derived from milk except water, or any material which may lawfully be contained in an article sold as cream." If the Bill is passed finally every place where "reconstituted cream" is manufactured or sold must be registered, and every receptacle containing the article plainly marked. Mr. Guinness (Minister of Agriculture) told the committee that it was unnecessary to make similar regulations for "synthetic cream," which is not cream in any sense, but made mostly of coconut products. The latter was easily recognised, and was covered by the Sale of Food and Drugs Act.

Exhibits at the B.I.F.

IN the course of last week's notes on the exhibits at the British Industries Fair, reference to a few stands was omitted through pressure on space. At the London section, Whiffen and Sons, Ltd., exhibited a number of chemicals of therapeutic interest, including Staniform (methyl stannic iodide), alkaloids, iodides, etc. At Birmingham, Charles D. Phillips, Ltd., who are manufacturers of mortar mills, hoists, haulage engines, etc., and dealers in new and second-hand machinery and plant, exhibited a large range of products.

Exemptions from Key Industry Duty

THE TREASURY have made an order under Section 10 (5) of the Finance Act, 1926, exempting para-phenetidine and potassium ethyl-xanthogenate (potassium xanthogenate) from Key Industry duty from March 4 to December 31, 1929. The Treasury Order will shortly be published by the Stationery Office.

"Banisterin" and "Harmine"

To the Editor of THE CHEMICAL AGE.

SIR,—In the *Evening Standard* for February 21, there appeared a paragraph which stated, on the authority of an International News Service message, that Professors Lewin and Schuster had described to the Berlin Medical Society a new drug called "banisterin," which was considered to be "a cure against paralysis caused by organic brain diseases." A similar paragraph suggesting the use of "banisterin" in the treatment of *Encephalitis lethargica* went the round of the Australian press in 1928.

Professor Lewin has described "banisterin" in two papers (*Archiv für experimentelle Pathologie und Pharmakologie*, April, 1928, Vol. 129, p. 133, and *Comptes rendus de l'Academie des Sciences*, February, 1928, Vol. 186, p. 469) and the composition and chemical characters of the alkaloid are so like those of harmine, discovered by Fritsch in 1847, as to leave little doubt in the minds of chemists that "banisterin" is harmine. Professor Lewin remarks that this has been suggested to him, but he follows his brief description of the pharmacological action of "banisterin" in the second paper mentioned above, with the remark: "To my knowledge harmine does not produce similar effects." In the *Archiv* paper he states he is relying on published information regarding the action of harmine.

Harmine is available in England, if not in Germany, and it seems to be essential that a pharmacological comparison of "banisterin" and harmine should be instituted as soon as possible. The point is important, because if Professor Lewin's results are confirmed a demand may arise for this drug, and harmine can probably be made much more easily from the usual source, the seeds of *Peganum harmala*, than from the plant utilised by Professor Lewin, *Banisteria caapi*. The latter is one of the suggested sources of the "yage" used by South American Indians as a narcotic. "Yage" has been repeatedly examined and the two most recent papers on the subject (Elger: *Helvetica Chimica Acta*, 1928, Vol. 11, p. 162, and O. Wolfes and K. Rumpf: *Archiv der Pharmazie*, 1928, Vol. 266, p. 188) leave no doubt that the alkaloid it contains is harmine, though it was at first mistaken for a new alkaloid and called "yageine" by Villalba. Moreover Wolfes and Rumpf state that Professor Lewin obtained his alkaloid from the same plant material as they did. The remarkable properties ascribed to "yage" are reflected in the name "telepathine" which Bayon gave to an alkaloid he obtained from "yage" and which is probably also harmine.—Yours, etc.

BURROUGHS WELLCOME AND CO.

London, February 25.

Reactions of Starch and Cellulose

An Address by Professor Howarth

ADDRESSING the Society of Chemical Industry at Birmingham University on Thursday, February 21, Professor W. A. Haworth gave an outline of some of the chief reactions of starch and cellulose. The ease with which both starches and cotton-cellulose broke down to give almost quantitative yields of glucose was evidence, he said, that the essential structure of these polysaccharides was based upon glucose. Recent work in the laboratories of the Chemistry Department at Edgbaston had demonstrated that glucose was built up in the form of a six-atom ring which could best be represented diagrammatically as a hexagon, just as could benzene. Not only was this the case with glucose, but all the common sugars of the hexose and pentose type had the same general structure, and were represented by models in which five carbon atoms and one oxygen atom were linked in a cyclic form.

There still remained open for discussion the exact conformation of the ring itself. A verification of the new structural formula given to sugars as a result of the work of himself and his collaborators had recently been provided by X-ray methods. It might be mentioned that under specially-devised conditions all the sugars could undergo transformation into a labile or transient form. As a result of these researches, it was now clear that simple sugars in their ordinary forms were derivatives of the parent substance pyrane and were known as "pyranoses."

The Development of Fast Dyeing and Dyes

Post-war Triumphs of British Chemists

A second instalment of Mr. James Morton's lecture before the Royal Society of Arts on "The history of the development of fast dyeing and dyes" is given below. It describes the difficulties that confronted this country at the outbreak of war, owing to the cessation of foreign supplies of colour, and the brilliant work of British research chemists in overcoming those difficulties and inaugurating the policy of making Great Britain self-dependent. The conclusion of the lecture will appear next week in our "Dyestuffs Monthly Supplement."

It is difficult to know just how to begin this second part of my story, for I sometimes rub my eyes even yet, and wonder whether it is not all a dream and if it really is true that one has been responsible for what is now known as Scottish Dyes, with its huge buildings and railway avenues spreading over some fifty odd acres of land, dealing with thousands of tons a year of raw products to be converted into intermediates and dyestuffs of the most complicated types, by dozens of skilled chemists, with hundreds of chemical process men, and employing something like a million sterling of good capital.

Much has been said at different times as to the condition in which manufacturers in this country found themselves when suddenly deprived of the supply of German dyes, but from what I have already said, you will agree that no firm, perhaps, was more hardly hit than we were. While we had our own special plant and processes of application, we had grown to be almost entirely dependent on Germany for the supply of these special products. We had developed a big and progressive world trade, and moreover, we had just formed that section of our business into a separate company for its further development—Morton Sundour Fabrics, Ltd. Should we have to pull down our Fast-Dye Flag, the work of all those years? Not except under direst necessity. But just what to do? In spite of the dislocation of everything by war, trade somehow kept coming in, and stocks of dye materials were rapidly diminishing. No one among us had ever troubled to know the chemistry of these dyes—we had had enough to do with application. Very little literature was available. But, as in other things at that time, this crust of ignorance must somehow be broken, and this was our plan.

In the last resort we could again revert to some of our earlier types of dyes, materials for which were all available in this country. But as in the earlier days, the crux again was the blues and the yellows, and their combination into greens. If we could get hold of just these two dyestuffs we could carry on, and our flag should not go down.

The Search for Blues and Yellows

Our head dyer, though he was not a university man and would not be considered a very profound or exact chemist, had a certain flair for things chemical in many directions, that came in most opportunely at this juncture, and was of great value to me in those early stages. We traced out the synthesis of those two dyestuffs, and found that they were both derived from 2-amino-anthraquinone, a word that was the purest Hebrew to me at that time, but which for many days to come I had to assimilate with my morning coffee. The blue was apparently got by fusing this 2-amino with caustic potash, and the yellow by treating the same substance with antimony-pentachloride in nitrobenzene.

This mysterious 2-amino-anthraquinone was derived from anthraquinone-2-sulphonic acid sodium salt, more commonly known as "Silver Salt," which I learned was the basis of alizarine. Here I felt was a distinct ray of hope. At Silvertown, on the Thames, was the British Alizarine Co., who had been large makers of alizarine for many years, and I felt, surely here were the people to tackle the manufacture of these essential dyestuffs—they were already half-way there. So with this new knowledge I got into immediate touch with this company. I was in hopes they might already have started on the problem; but this only resulted in my being told that they had done nothing in the direction of these colours, nor could I persuade them to consider doing so.

I then visited the other dye-making concerns to learn whether they were doing or had intentions of doing anything towards the manufacture of these vat colours, but their reply was in the same strain. They were busy on the manufacture of general dyestuffs, so much in demand, also with some essential acids for war purposes, and they could not consider taking up anything so intricate or exclusive as the vat dyes.

So I went home to "chew the cud" and to see whether amongst all our new activities it would be possible to add this further difficult problem. For by this time we had already, among other things, undertaken the manufacture of a fairly large number of Army blankets, so urgently wanted at that time. We decided, however, that if we could procure the silver salt we really would set out and try to do the rest of the processes ourselves—I was determined that we should have that blue and yellow, though they should cost us their weight in gold. But it was imperative to get more definite and detailed information as to manufacture. There were no books on these recent dyes, and Patent Specifications were not to be had. The only source of information was the Patents Library in London, and I was lucky in procuring the services there of a good chemical reader, who spent many hours and days extracting for us the necessary details of the various patents involved. And thus we were enabled to see something of the road before us.

The Conversion of Silver Salt

I then approached again our friends at Silvertown—the British Alizarine Co.—this time for a different purpose. I explained my project, and the worthy Dr. Bendix looked mildly amused. In the end, however, he let me have my silver salt, and from the smile on his face, I am sure he felt it was like giving a schoolboy what he asked just to humour him, and that no more would be heard of it. So I got the precious silver salt home, and our fun began. We had now to convert it into the 2-amino-anthraquinone which, as I told you, is the basis of our coveted yellow and blue. But what did this mean? It involved one of the most difficult operations in chemical manufacture, and one that had never been done in this country—indeed, the means for it did not exist. It involved the heating of the silver salt under a pressure of from 600 to 800 lb. per sq. inch or 35 to 40 atmospheres with ammonia at a temperature of from 180° to 200° C. By dint of great luck we had available a little old autoclave made of Krupp steel, and which had been procured years before for quite a different kind of purpose. It held about 1½ litres, with solid cover held down by clamps, and, what was best of all, had a splendid all-steel pressure gauge and safety valve.

One cannot go into all the interesting and exciting details of these first days and nights, but suffice it to say that we at last got our little autoclave to yield us a quite respectable 2-amino-anthraquinone, with its long orange needles, or crystals, and by early November, just three months after war began, we had actually produced Indanthrene Yellow G., and in a few days later, the Indanthrene Blue—only a few grammes of each, and I am afraid, not of the purest, but we had worked out the processes and knew something of the road we had to travel, or, shall I say, as much of it as was good for us then to know.

Early Plant Problems

We had then to consider plant, and it made me smile when looking up my notebook the other day, in connection with this paper, to read the modest list of requirements that was to form the first chemical plant in this country for the making of vat dyes—a few hundred pounds sterling in all. The chief problem, as you may imagine, was the autoclave. We decided to make it of a size to hold a charge of 8 cwt., and a steel vessel of that capacity to stand a working pressure of 40 atmospheres at about 200° C. had never been thought of in this country. However, with the help of a good local engineer we made as careful a design as we could for an autoclave complete with stirring gear, pressure gauge, thermometer, tube pockets, safety valves, etc., and the casting was put into the hands of a London company to whom we had been specially recommended. It was a long wait for this vessel, but meantime the other plant was getting ready, and we kept getting

experience with our little autoclave, making a charge every day without fail, and the cupfuls of blue and yellow colour thus got were not to be despised. At last, some time in January, 1915, the wonderful autoclave was ready, and I went south to see the hydraulic test. But it was no good. The material used had been too porous, and, moreover, it had other faults in construction, where the makers had departed from our design, and we decided that we could never take the risk of a charge with ammonia at the temperature necessary. This was our first adverse blow.

In our extremities we heard from an engineer of a certain vessel in London that might be adapted to this high pressure and temperature, and we lost several weeks in adapting this, but to find it also was insufficient.

It was at this time I heard that one of the big dye firms had a vessel that might do such work, and I went at once to see if they could extend us temporary accommodation. I mention the incident because of its effect in other ways. The gentleman I saw seemed astonished at my visit and my request. What were we up to? This was a chemical operation, and we were only weavers, and something more, rather in disparagement of people like ourselves trying to make dyes, especially dyes requiring such processes. From my after knowledge I learned that he really had no plant that could have helped us, so that his methods may have been by way of a screen or bluff. But it had the effect of putting further fight into me, and "Begad," I said to my friend who was waiting outside, "I will let that man see yet whether weavers can make dyes." The next time we met was some four years later, after much water had flowed under the bridges. We had been asked to speak together on the same platform at an important chemical meeting in London, and no one could have been more complimentary to our accomplishments than he was on that occasion.

But what about our autoclaving? The above incident was in early March. It was impossible to wait further months, for we were starving for colour. So we thought, why not try weldless steel tubing, and we learned that a length might be available at Cochran's Boiler Works at Annan. I can remember the very cold night we drove out to Annan on that quest, the keenness and determination of each of us, and we brought back in our car the tubing which occurs in my notes under date just three weeks after the rebuff incident recorded above, as follows:—

> "Saturday, March 27, 1915.—Have had first satisfactory results silver salt into 2-amino-anthraquinone from improvised autoclave made out of Stewart and Lloyd M.S. Tubing 3 ft. 8 in. long by 10 in. diameter. Charge 7 gallons silver salt and ammonia, gave us sufficient amino for 20 lb. of colour. Immediately put two other vessels in hand, which should give us 60 lb. per day, sufficient to dye 25 to 30 pieces cloth of a medium blue or green."

The First Blue and Yellow Vats

It was one of the red letter days, and though the colour was by no means "standard," it was the first real works blue and yellow vats produced in this country, made, as you see, at the works in Carlisle, and from plant practically all local. It was, as I have said, the real beginning, for from that day we have never ceased getting our supplies from our own production. And it will give some idea of the growth from that small beginning when I tell you that of these two colours, or their variations, our plant has now a capacity of over 10 tons a week, or about 1 million lb. a year.

By October of that year—1915—a thoroughly sound 8 cwt. autoclave, with stirring gear and everything complete, had come to the assistance of our little battery of tubing autoclaves. This was cast by Edgar Allen of Sheffield, and proved sound in every way. It was succeeded by one of a ton capacity, also made by the same firm, and later, by some from Hadfield of Sheffield, and others, most of which are still running.

I have given you the history of these autoclaves in some detail because they form one of the chief keys in the manufacture of vat dyes, and because they represented a problem in high pressure and high temperature reactions that was quite new to the chemical and engineering experience of this country, and that demanded a combined skill and knowledge of the highest order.

But fresh obstacles had in the meantime been developing towards an easy road to our dyes production. As I have told you, we began by getting our silver salt ready made, but it was soon apparent that this source would not be available. This meant that we had to tackle the whole problem of the manufacture of these long process dyestuffs, not only from the silver salt forward to the finished dyestuffs, but from the crude coal tar anthracene right through its stages to the silver salts. The chemists among you will realise something of what was involved. Commercial anthracene could be had of 40 per cent. purity only. This had to be purified up to 95 per cent. at two stages. It had then to be further subdivided by sublimation with superheated steam, which again had to be converted into crude anthraquinone and this developed up to a purity of 95 per cent., before it could be ultimately sulphonated with oleum into the desired silver salt.

Difficulties in the Way

Such was roughly the further road we had to travel for lack of our supply of ready-made silver salt. It was a road with obstacles enough to scare amateurs in ordinary times, and when one thinks of the conditions then existing, one wonders how we ever started or ever got through. For it was just then that it was being realised how long and tough the struggle of war might be. Every man and every human activity were claimed for the services of the war. And not only men, but materials, for can one forget the difficulty with which we could be spared a few pounds of lead or a few hundredweights of steel, or how we felt it almost criminal to ask for any purely business purpose the smallest extra supply of sulphuric acid, oleum, or glycerine? I recall these facts now not only to give you younger people some idea of the tense conditions of those times, but because criticism has sometimes been lodged against British dye-makers that they were not more advanced in their problems and production by 1918. Such criticism is apt to forget that not only were we all personally mainly engaged on other work essential to the war, but the very elements that go to the making of dyes were scarcely procurable.

But by dint of many varied efforts we got our new buildings and plant erected, on a small scale at first, and later in much bigger form, so that we were ultimately equipped for the making of these anthraquinone colours from the coal tar to the intermediates and the finished dyestuff. And having had to extend our operations to this broader field, we naturally investigated as to what other colours we should tackle to justify this comparatively large chemical plant. Our chemical reader at the Patents Library had been kept very busy, and had supplied us with the necessary data for our own group of vat dyestuffs, and in the meantime we had got around us several young men of chemical training, so that research was going ahead now in our own laboratories.

Much of our attention at that time was concentrated on colouring matters dependent on the initial production of benzanthrone, and the working up of this to a high state of purity was one of the problems that engaged much of the attention of our chemists over a long period. The highly successful results of this work was of far-reaching importance in the later stages of our development, as pure benzanthrone became a very essential factor in the manufacture of new colours, which will be referred to later.

Cellulose Solutions

Home Office Memorandum on Manufacture, Use and Storage

THE rapidly extending use of cellulose solutions for painting and decorative work has raised urgent questions as to the dangers which may result from their toxic effect and from the risk of explosion. The Factory Department of the Home Office has therefore prepared a *Memorandum on the Manufacture, Use and Storage of Cellulose Solutions* (H.M. Stationery Office, pp. 12, 3d.) for the guidance of persons manufacturing and using cellulose solutions, to indicate the manner in which danger arises and the precautions which ought to be adopted to meet it. The memorandum deals with the composition of cellulose solutions; their use and application; dangers from manufacture and use (poisoning, fire and explosion); necessary precautions (ventilation, prevention of ignition, electrical precautions, constructions of rooms and apparatus, cleanliness, care in use, and storage). The memorandum closes with a useful summary of recommendations.

River Purification

Suggested Work for Unemployed

A SCHEME proposed by the Federation of British Industries, to use the unemployed for the work of purifying our rivers, was put forward by Lord Gainford at the annual meeting of the National Association of Fishery Boards in London on Thursday, February 21. The Federation, he said, had pointed out that if the money for the unemployed was used in the manner suggested, some return, at present not forthcoming, would be obtained from the expenditure. The Government had already recognised that the matter of purifying the rivers was one of national importance, and would affect directly the health and sanitary conditions of the population.

Increased Pollution

The tendency had been for increased pollution to occur. Industries, he believed, were alive to their duties, but on all hands increased quantities of sewage were going into the rivers. The greatest pollution occurred in the thickly populated areas, and it was there that the greatest number of unemployed were to be found. He hoped the Government would at once go into the proposal which had been put forward.

Mr. F. H. Heald (clerk to the Trent Fishery Board) said that 95 per cent. of the pollution in his area could be put down by local authorities. He did not know one local authority, he said, which had done its duty in the direction of sewage disposal. In no case had they proper preparation for increase in sewage due to new housing schemes.

Midland Chemists' Dinner

Mr. Woolcock on Industry and Science

THE Birmingham and Midland branches of the Society of Chemical Industry, the Institute of Chemistry and the British Association of Chemists held their annual dinner at the Midland Hotel, Birmingham on Saturday, February 23, Mr. W. A. S. Calder presiding.

Proposing the toast of "Chemistry and Industry," Mr. W. J. U. Woolcock (managing director of the Mond Staffordshire Refining Co.) said that industry was more indebted to chemistry than to any other science. There was to-day in every sphere a spirit of inquiry. Theories which at one time seemed to have the force of dogmas were now being inquired into, there being a general desire to know the real facts before any particular decision was arrived at. It was this spirit which was pre-eminently present in the chemical industry, and which in the long run would put British trade and commerce upon their feet.

Mr. F. Scholefield (president of the British Association of Chemists) responding, said that the formation of big combines in industry might appear to restrict the opportunities for employment. That would be taking a short view of the case, since, with large funds at their disposal, these combines were in a position to exploit the developments of the sciences and to apply them to industry on a larger scale than was possible before.

Institution of Chemical Engineers

Elections of Members and Associate Members

THE election of a number of new members and associate members is announced by the Institution of Chemical Engineers:—

MEMBERS.—Dr. S. G. Barker, Director of Research, British Research Association for the Woollen and Worsted Industries, Torridon, Leeds; Dr. E. P. Hedley; H. B. Holliday; J. Hollins; L. F. W. Leese; E. Lewis; W. J. Lowey; F. L. Melvill; J. P. Mullen, lecturer in chemical engineering, University College, London; H. H. Orr; E. Spencer; D. R. Wattleworth; and G. S. Whitham.

ASSOCIATE-MEMBERS.—W. Beesley; E. C. Dixon; R. Douglas; A. S. Fitzpatrick; J. W. Grose; H. Harper; J. W. Hawley; C. M. Keyworth; T. Lambert; Dr. G. Lawton; H. L. Long, head of the departments of chemistry and dyeing, Leicester College of Technology; W. R. D. Manning; T. B. Philip; A. Potter; E. A. Reavell; and H. A. Tunstall.

GRADUATES.—W. C. Colclough; D. B. Eastwood; H. T. Fisher; T. H. Jarvis; S. J. Kohli; S. A. Leivers; W. A. Orkin; C. K. Rayner; N. L. Vidyarthi; A. Webster; and A. B. Winterbottom.

STUDENT.—A. J. Cruise.

Chemical Notes from Westminster

Questions in the House

The Gallery, Westminster.

MR. WEDGWOOD BENN'S inquiries (House of Commons, February 22) as to the duties collected on radium compounds and the amount of the supplies elicited from Mr. Samuel the information that from October 1, 1921, to January 14, 1927, duty was chargeable on radium bromide and radium barium chloride. The duty recorded as collected on these substances from January 1, 1922, to January 14, 1927, was £6. The figures for October 1, 1921, to December 31, 1921, were not available. From January 15, 1927, duty became chargeable on all radium compounds, and the amount of duty recorded as collected for the period January 15, 1927, to May 14, 1928, when the duty was suspended, was £80. No information was given as to supplies.

The Chancellor of the Exchequer (February 21) informed the House that the estimated yield of Customs Duty on hydrocarbon oils for 1928-29 was £8,700,000 and for a full year £13,400,000. The yield from Excise Duty on existing stocks at May 1, 1928, was £3,600,000.

Sir F. Sanderson introduced a new phrase (February 13) when he inquired as to the Government tests of processes for the "slow carbonisation of coal," which the Secretary for Mines took to mean low temperature carbonisation. The Director of Fuel Research, the Secretary stated, was authorised to test, free of charge, as regards technical results, any processes which had reached a sufficient stage of development. Reports of five such tests had been published, a sixth was being printed, and two more were being arranged. Commercial success depended on local conditions as well as on the process, and could only be proved by continued working over a prolonged period. The Government did not propose to take any steps beyond those already announced.

A reply on behalf of the Board of Trade (February 25) indicated that the amount of artificial silk yarn produced in the United Kingdom and chargeable with Excise Duty in 1928 was 50,388,000 lb. The output in 1924 was only 25,654,000 lb., a little more than half.

Report of Continuous Coal Carbonisation

THE report of Continuous Coal Carbonisation states with respect to research work that very satisfactory results have been obtained in regard to gas, fuel and residual oil. The original oven is being superseded by a new design which will be more economical and will cost less to construct, and the directors say that they are satisfied from the results and tests obtained that the continuous principle of low temperature carbonisation has amply justified their confidence in the future success of the process. The company is laying down at Erith Works a continuous carbonising unit of the straight-line type of considerable capacity, which will be completed within some three or four months' time. An identity of interests and an agreement have been come to with the Incandescent Heat Co. of Birmingham, and Continuous Coal Carbonisation secures the sole licence for that company's patents. The board has been reorganised, and of the original members only Colonel A. E. Williams remains.

Inquest on Oxford Undergraduate

A VERDICT of death from asphyxia, caused by some drug the identity of which there was no evidence to show, was returned by the jury at an inquest on William F. Guy, aged 22, of Highfield Road, Bushey, Herts, an undergraduate of Keble College, on Monday, at Oxford. Guy was found dead in bed on Sunday, February 24. Dr. G. D. Parkes, a tutor of Keble College, said that Guy was in his third year and was reading in the chemistry school. One of Guy's tasks in the chemistry school was to analyse certain unknown drugs, and it was possible for him to take a small quantity of the drugs into his rooms in the college. Dr. W. Collier said that a year ago he saw Guy at the request of the warden of the college, as he had been behaving rather strangely. On his advice Guy saw Dr. Good, who was in charge of the neurological department of the Radcliffe Infirmary, Oxford. He was discharged from Dr. Good's care some months ago.

From Week to Week

MR. HENRY MOND is the Conservative candidate in the pending by-election in the East Toxteth division of Liverpool.

SIR FELIX BRUNNER, BT., it was announced at the annual meeting of Oxford and Shipton Cement, Ltd., had joined the board in place of his father, the late Sir John Brunner.

THE SIR EDWARD FRANKLAND Medal and Prize of the Institute of Chemistry have been awarded to Mr. C. Fryer, a student of the Municipal Technical College, Birmingham.

PROFESSOR ARTHUR SMITHELLS, director of the Salters' Institute of Industrial Chemistry and president of the Institute of Chemistry, sailed recently on the *Edinburgh Castle* for a visit to South Africa.

THE ANGLO-PERSIAN OIL CO. have decided to make an annual grant of £100 to the University College of Swansea for research purposes.

A REPORT FROM LENINGRAD states that Mr. John Woolfman, the local director of the Leningrad branch of the Morgan Crucible Co., of Battersea, has been arrested by the Soviet authorities on charges connected with obtaining orders. The charges are denied, and steps are being taken for his defence.

MR. ROBERT MOND, who on Wednesday read a paper to the French Society of Chemical Industry, at the same time presented a cheque for one million francs (£8,000) to the Maison de la Chimie. Mr. Mond has been elected a member of the Society for his services to science and industry.

MR. LENNOX B. LEE, chairman of the British Alizarine Co., the Calico Printers' Association, and several other concerns, has been nominated as president-elect of the Federation of British Industries in succession to Lord Ebbisham, whose presidency terminates next April. He will be the first representative of the cotton industry of Lancashire to occupy the presidency.

PROFESSOR G. T. MORGAN, it is officially announced, has been elected chairman for the ensuing session of the London Section of the Society of Chemical Industry. By the retirement of Dr. E. H. Tripp and Mr. C. A. Klein from the Committee, there are two vacancies to be filled, nominations for which should reach the Secretary of the Section not later than Friday, April 12.

THE FOLLOWING CANDIDATES are among those who have been recommended for election on March 4 as Fellows of the Royal Society of Edinburgh :—Dr. S. G. Barker, director of research to the British Research Association for the Woollen and Worsted Industries; Professor James Kendall, F.R.S., of the University of Edinburgh; and Professor D. N. M'Arthur, of the Department of Agricultural Chemistry, West of Scotland Agricultural College.

RUMOURS have been in circulation in the Seaham district that Seaham Harbour bottleworks, now disused, have been acquired by a well-known chemical combine, either for the making of bottles for their various products, or for use as a chemical works or factory of some other description. Definite confirmation of the rumour cannot be obtained. The bottleworks, which formerly employed 500 hands, have been closed for about seven years.

THE ROYAL DUTCH-SHELL OIL GROUP is participating financially in the Dutch nitrogen products factory at Ymuiden. It is suggested in the German Press that this may involve the formation of a new European nitrogen concern whose activity, on the basis of the Mont-Cenis patents, would be in the first place directed against the I.G. It is thought in some circles that the Royal Dutch-Shell group may undertake the large-scale manufacture of nitrogen compounds in the United States.

MR. F. H. TERLESKI, in a paper on "The Manufacture of Toilet Soap and Glycerine," before the Chemical Section of the Manchester Literary and Philosophical Society, advised the use of oil soap for blonde ladies, but not for brunettes. Adulteration, he said, was not unknown in connection with the production of cheap toilet soaps. In a sample of alleged oatmeal soap which he had examined, it was found that the oatmeal had been replaced by sawdust. A warning was uttered against the use of glycerine—either internally or externally—above a concentration of 60 per cent., on account of its simultaneous moisture-absorbing and heat-promoting properties.

IN THE SOUTHWARK COUNTY COURT, on Thursday, February 21, before Judge Moore, there was an application under the Workmen's Compensation Act by Mrs. Ann Marks and her six children for £600, for the death of Henry John Marks, her husband, of 15, Dunlop Place, Bermondsey, S.E., against B. Young and Co., Ltd., described as glue, gelatine, etc. manufacturers, of Dunlop Place, Spa Road, Bermondsey, London. The particulars of claim alleged that the deceased man fell into an open and unfenced "catch pit" in the "scutch house" of the respondents' premises, which unknown to the man contained a dangerous chemical liquid, heated to such a degree that he sustained scalds which ultimately caused his death. The accident occurred on July 20 last, and Marks died on July 24. Judge Moore entered an award for the applicant for £600, with costs on the higher scale. Notice of appeal was given.

THE REGISTERED OFFICE of Imperial Chemical Industries has, as from February 25, been Imperial Chemical House, Millbank, London, S.W.1.

THE MARRIAGE of Mr. Norman Craig, chief chemist in the Royal College of Mauritius, and Miss Kathleen Thompson, was solemnised at Barnard Castle on Tuesday.

A NEW COMPANY under the title of Parent Coal Carbonization Trust, Ltd., has been formed to acquire rights for the United Kingdom of the Aicher process for low temperature carbonisation of coal.

A LECTURE on "The Costing of Chemical Manufacturing Processes," by Mr. L. Staniforth, cost accountant to Brotherton and Co., Ltd., which was delivered at Leeds last November, has just been published by the Institute of Chemistry.

ASKERN MAIN COLLIERY, Doncaster, will be the first British colliery to use the low-temperature carbonization process. The pithead works, which they will open shortly, will absorb 1,500 tons of cheap raw coal weekly, yielding 1,000 tons of patent smokeless fuel, 31,000 gallons of oil, and 6,000,000 cubic feet of gas.

MR. H. BELL THOMPSON, the managing director of Sternol, Ltd., has been elected the representative of the whole of the national lubricating oil trade (including distillers, refiners and blenders of petroleum products) in the United Kingdom, on the Grand Council of the Federation of British Industries.

THE CHEMICAL ENGINEERING GROUP of the Society of Chemical Industry announces that unforeseen difficulties having arisen in connection with the proposed paper on "The Commercial Distribution and Handling of Liquid Gases," which was to have been presented on March 8, the reading of this paper is postponed and no meeting will be held on that date.

THE MINISTRY OF AGRICULTURE and Fisheries has informed the Institute of Chemistry that it has impressed upon the beet sugar companies the desirability of the general adoption of the eight-hour shift, and that it has been assured that those factories which at present are still forced by local circumstances to work twelve-hour shifts will make every effort to work eight-hour shifts as soon as the conditions permit.

SIR T. M. LEGGE, for many years a well-known factory inspector, lecturing to the Royal Society of Arts, London, on Monday, said that there were more cases of lead poisoning in the motor and wireless accumulator industry than in any other trade. The dangerous process was the pasting of the plates, and he suggested that a prize might be offered for the invention of an automatic plate-paster, which would at once halve cases of lead poisoning among accumulator workers.

PETROLEUM REFINERIES, LTD., invited subscriptions on Tuesday for 700,000 participating preferred ordinary shares of 10s. and 700,000 ordinary shares of 1s. The company has been formed to acquire a licence from the Gyro Process Co., of Detroit, U.S.A., for the manufacture of motor spirit from petroleum oils or any other suitable raw material. It is the intention of the directors to concentrate upon the treatment of oil produced by low temperature carbonisation. The board includes Colonel W. A. Bristow, managing director of Low Temperature Carbonisation, Ltd.

Obituary

DR. W. N. NAGAI, the Japanese chemist, on February 10, aged 84.

MR. J. G. FORSTER, senior partner in the firm of J. G. Forster & Co., chemical and general merchants, of Liverpool, aged 74.

DR. H. KREY, director of the Riebeck-Montanwerke A.-G., in Germany, on February 18, aged 77.

MR. MARTIN FLOYD NORTHCOTT, of Leicester, analytical chemist at the City Electricity Department.

PROFESSOR P. P. PETROW, of the department of the chemical technology of fibres at the Moscow Technical High School.

MR. WILLIAM DUNCAN SAWERS, F.I.C., at Belfast, on February 2, aged 56. He was a member of the board of Sawers, Ltd., taking charge of their ice factory and cold stores.

MR. HENRY SMITH, F.I.C., chief chemist to the London, Midland and Scottish Railway, Division B, at Horwich, on February 2, aged 55.

MR. F. KIRKHAM, at Northwich, Cheshire, manager of the Witton Brine Pumping Shaft, which supplies the works of Imperial Chemical Industries with brine for manufacturing purposes. He was one of the oldest employees of Brunner, Mond and Co.

MORITZ VON GALLOIS, the German chemical colourist, last December, aged 69. He was in the service of the Höchst Farbwerk-vormals Meister Lucius und Brüning (now part of the I.G.) for 38 years, and worked out numerous new textile printing and dyeing processes.

MR. JAMES WEST KNIGHTS, F.I.C., on February 6, aged 76. For 50 years he held the post of public analyst for the County and Borough of Cambridge, the Counties of Huntingdon and the Isle of Ely, and the Boroughs of Wisbech and King's Lynn, retiring in 1928.

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Diffusion of water through rubber. E. E. Schumacher and L. Ferguson. *Ind. and Eng. Chem.*, February 1, pp. 158–162.

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The adsorption of carbon dioxide and ammonia on silicic acid gel. A. Magnus and R. Kieffer. *Zeitschrift anorganische Chem.*, Vol. 179, Parts 1–3, pp. 215–232.

ANALYSIS.—Determination of potash in compound fertilisers. A. Stein. *Zeitschrift angewandte Chem.*, February 16, pp. 179–182.

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The application of magnesium and methyl alcohol as a reducing agent. L. Zechmeister and P. Rom. *Annalen der Chem.*, Vol. 468, Parts 2 and 3, pp. 117–132. Benzophenone gives a 90 per cent. yield of benzhydrol; benzalacetone a 70 per cent. yield of benzylisopropyl alcohol; many aliphatically and aromatically bound halogens (bromo-, but not chloro-benzene) are replaced by hydrogen; nitro-compounds give various reduction products.

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Methylated nitro-naphthylamines. V. Vesely and A. Vojtech. *Collection of Czechoslovak Chem. Communications*, February, pp. 104–118 (in French).

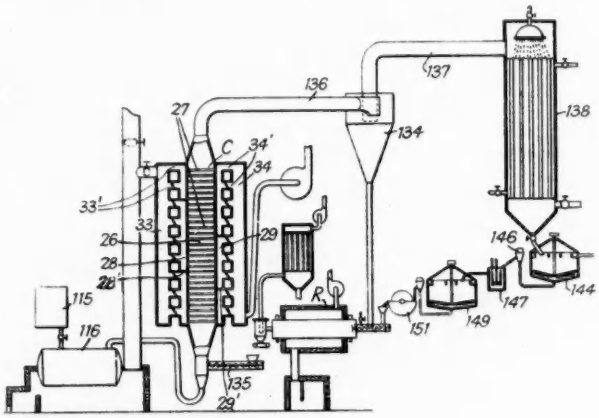
Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

304,251 and 304,269. CATALYSING GASEOUS REACTIONS. H. Wade, London. From the Silica Gel Corporation, 1100, Garrett Building, 239, Redwood Street, Baltimore, U.S.A. Application date, July 12, 1927.

304,251. Heavy oil from a reservoir 115 is heated in a retort 116, and the vapour passes to a cracking chamber C, consisting of a central chamber 26 with transverse tubes 27, through which the heating gases pass. The heating gases are



304,251

supplied to an inlet header 33, connected by branch pipes 33^1 with a chamber 28, into which all the pipes 27 open. A similar chamber 29 on the opposite side of the casing is connected by pipes 34^1 to an outlet header 34. The chamber 28, 29, have partitions 28^1, 29^1, and the pipes 33^1, 34^1, are each provided with a controlling valve. This arrangement permits the heating gases to pass through the pipes 27 in series or parallel as determined by the valves, so that an accurate control of the temperature in the chamber 26 is obtained. The catalyst consisting of silica gel impregnated with iron oxide, is fed into the vapour stream by a conveyor 135, and vapour is cracked in the chamber 26. The vapour then passes through a pipe 136 to a separator 134 to remove the catalyst, and then through pipe 137 to a condenser 138. The condensate passes to separator 144 which removes any catalyst present, and delivers it to a pump 146, and thence to an agitator 147 supplied with hot water to displace any oil in the catalyst. The mixture passes to another separator 149, and thence to a filter 151. The catalyst then joins that which was separated by the device 134, and passes to an activating apparatus R, after which it can be used again.

304,269. The apparatus employed is similar to that described in specification No. 304,251 above, but is adapted for other reactions, such as the oxidation of sulphur dioxide or the hydrogenation of oils. In the former case, the sulphur dioxide from an ore roaster passes through the heating tubes of the catalyser, and then into the central chamber with the catalyst, so that an accurately controlled heat interchange takes place. The sulphur trioxide formed is absorbed in sulphuric acid in an absorber which takes the place of the condenser 138.

304,623. LIQUID OR SOLID PRODUCTS, MANUFACTURE OF—BY GASEOUS REACTION UNDER THE ACTION OF SILENT ELECTRICAL DISCHARGE. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, October 20, 1927.

The object is to reduce unevenness on the walls of the reaction chamber due to deposition of liquid or solid products when gases are treated by silent electrical discharge. This may be done by controlling the temperature so that it is allowed to rise above the saturation point of the gas mixture and no deposit takes place. Alternatively, the gas mixture may be diluted to ensure working below saturation point, or the speed of the gas mixture may be such that the reaction products are carried away. In another method, an inert liquid is caused to flow over the walls of the reaction chamber to dissolve or wash away the products which settle. Some examples are given showing an improved efficiency in the production of hydrogen peroxide. The method is also applicable to the production of formic acid, formic aldehyde, acetic aldehyde, etc. Reference is directed in pursuance of Section 7, Sub-section 4 of the Patents and Designs Acts, 1907-1928, to specifications 275,813, 169,063, and 123,760.

304,809. GREEN HYDRATED CHROMIUM OXIDE, PRODUCTION OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, October 24, 1927.

Green hydrated chromium oxides are obtained without the usual fusion with boric acid and difficulty of removing the boric acid, by heating chromic acid or its salts and water with reducing agents, except sulphurous acid at pressures up to 150 atmospheres. The reducing agent may be hydrogen, hydrocarbons, carbon monoxide, formates, glycerine, sodium thio-sulphate, etc. Hydrated chromium oxide with varying water content and of different shades is obtained. Examples are given of the treatment of sodium chromate or bicrhromate with carbon monoxide, sulphur, or hydrogen.

304,855. ACETALDEHYDE AND ACETIC ACID, MANUFACTURE OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, November 2, 1927.

Acetylene is converted into acetaldehyde or acetic acid by means of oxygen and hydrogen instead of water, using catalysts having both oxidising and hydrating properties. Acetaldehyde is mainly obtained by using compounds of mercury or vanadium as catalyst, at a temperature of 40° to 180° C., the amount of oxygen being below that theoretically required. Acetic acid is mainly obtained by using salts of tin, silver, or mercury, particularly those which contain vanadium in the acid radicle. The temperature is 100° to 250° C., and a larger proportion of oxygen is used. To avoid a risk of explosion, the oxidising gases are introduced by stages. The initial material may be a mixture of acetylene with methane, and the residual gases may then be converted into acetylene by the electric arc or by heat treatment as described in specification 264,845 (see THE CHEMICAL AGE, Vol. XVI, p. 340), and the acetylene then converted into acetaldehyde or acetic acid. Any methane-containing gases may thus be used according to this process.

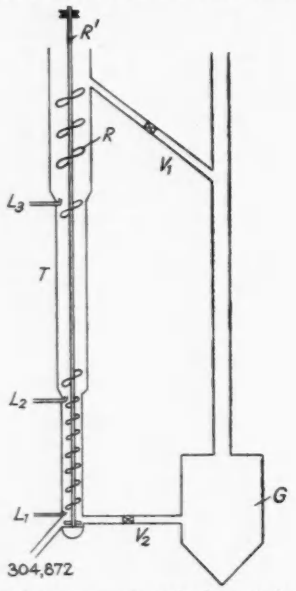
304,914. GASEOUS HYDROCARBONS, TRANSFORMATION OF. P. H. Hull, Norton Hall, The Green, Norton-on-Tees, Durham, and Imperial Chemical Industries, Ltd., Broadway Buildings, Westminster, London, S.W.1. Application date, January 21, 1928.

Methane is treated by an arc discharge between poles of tungsten, molybdenum, osmium, or tantalum, their compounds, or alloys. A tungsten pole is rapidly covered by a coating of tungsten carbide, which works equally well. The electrodes must diverge in the direction of the gas stream, so that the carbide adheres to the electrodes. A low-tension arc (400 to 1,000 volts) may be used with tungsten electrodes, which will stand the high temperature.

304,872. OBTAINING CRYSTALS OF UNIFORM COARSE GRAIN, ESPECIALLY OF FERTILISER SALTS. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, November 24, 1927.

Crystals of uniform and coarse grain are obtained from salt solutions by blowing air through them to keep the smaller crystals in suspension and allow only the coarser crystals to

settle to the bottom. The air bubbles act as cooling surfaces and form crystal nuclei. A saturator G is connected by tubes V_1 V_2 to a tower T having feed pipes L_1 L_2 L_3 for air. Spiral blades R are mounted on a shaft R^1 and assist the circulation



of the solution. The coarser deposited crystals are tapped off, and the growing crystals remain in the zone T, while the smallest crystals are carried back through the tube V, to the saturator. Examples are given of the production of uniform crystals of ammonium sulphate and ammonium bicarbonate.

304,926. Recovery of Oils and Naphthenic Acids from Still Residues Obtained in the Purification of Mineral Oils. C. Arnold, London. From Humble Oil and Refining Co., Houston, Texas. Application date, February 6, 1928.

When lubricating stocks containing naphthenic acids are distilled with caustic soda, the heavy residue contains sodium naphthenate and high viscosity oil. The hot residue is discharged on to the surface of flowing water and then allowed to separate into layers. The water and dissolved naphthenate are withdrawn from the bottom layer, and the residual layer is further stratified. Oil is withdrawn from the top, and water containing metal naphthenates from the bottom.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention :—279,856 (Schering Kahlbaum Akt.-Ges.) relating to condensation products from crude cresol and aliphatic ketones, see Vol. XVIII, p. 14 ; 281,662 (H. Ohle and J. Othmar-Neuscheller) relating to ethyl alcohol gels, see Vol. XVIII, p. 104 ; 292,991 (Soc.-Chimique des Usines du Rhône), relating to potassium manganate, see Vol. XIX, p. 195 ; 294,263 (I.G. Farbenindustrie Akt.-Ges.), relating to thiosemicarbazones of arseno-phenol-aldehydes or arseno-phenol-ketones, see Vol. XIX, p. 297 ; 294,654 (I.G. Farbenindustrie Akt.-Ges.), relating to fertilisers, see Vol. XIX, p. 323.

International Specifications not yet Accepted

302,984–5. Synthetic Drugs. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany, and A. Carpmael, London. International Convention date, July 9, 1927. Additions to 267,169 and 274,058. (See The Chemical Age, Vol. XVII, p. 242.)

302,984. 3-Methoxy-4-isopropyl-oxyaniline is condensed with β-diethylamino-β^1-chlor-diethyl-sulphide, β-diethylamino-β^1-chlor-diethylether, or ethyl-diethylamino-ethylamino-ethyl chloride. The preparation of these substances is also described.

302,985. Aminophenols or diamines of the benzine series or their derivatives or substitution products are converted into more strongly basic polyamino derivatives by introducing more than one alkyl-amino-alkyl group into the same or different amino groups of the benzene nucleus. In one example, *p*-amino-diethyl-amino-ethyl-methylaniline is heated with diethylamino-ethyl-chloride to obtain *p*-(diethylamino-ethylamino)-diethyl-aminoethyl-methylaniline.

303,021. Isoeugenol. Graesser-Monsanto Chemical Works, Ltd., Ruabon, Denbighshire (Assignees of T. S. Carswell, 119, Edwin Avenue, Glendale, Miss., U.S.A.). International Convention date, December 22, 1927.

Safrol or isosafrol is heated with alcoholic caustic potash under pressure, and the mixture of alkoxy-isoeugenol and alkoxy-isochavibetol obtained is separated by the fact that the calcium salt of alkoxy-isochavibetol is less soluble in alcohol. The separated salt is methylated and then hydrolysed to produce isoeugenol.

303,026. Dyes. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 24, 1927.

A secondary disazo dye of the type A—N=N—M—N=N—E or a trisazo dye of the type A—N=N—M—N=N—M^1—N=N—E where A is the residue of an initial component, M and M^1 are middle components free from hydroxyl groups, and E is an amine coupled in *p*-position to the free amino group, in the free amino group of the final component is condensed with *m*-or *p*-nitrobenzoyl-chloride, a homologue or substitution product, and reduced. Examples are given.

303,068. Extracting Acetylene from Gases. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 27, 1927.

Acetylene is dissolved out by means of acetonitrile.

303,093. Synthetic Drugs. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, July 9, 1927. Addition to 267,169 and 274,058.

These compounds are obtained by condensing a dinitro-halogen compound of the benzene series with an alkylated aliphatic diamine, and reducing the nitro groups, or by treating an aromatic amino-oxy compound or polyamine with a reactive derivative of a hydroaromatic alkylamine or of a heterocyclic compound. Thus, 2 : 4-dinitro-chlorbenzene is condensed with β-diethylamino-ethyl-methyl-amine to obtain 2 : 4-diamino - 1 - diethylamino - ethyl - methyl - aminobenzene. Other examples are given.

303,097. Synthetic Drugs. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany, and A. Carpmael, London. International Convention date, July 9, 1927. Addition to 267,169 and 274,058.

Alkoxyaminophenols are converted into more basic polyamino derivatives by introducing alkylaminoalkyl groups into the hydroxy and amino groups. Thus, an alkoxy-nitrophenol may be treated with diethyl-aminoethyl chloride to obtain the corresponding alkoxy - diethylamino - ethoxy - nitrobenzene. This is reduced to the amino compound and then treated with diethyl-aminoethyl chloride.

303,115. Alkaline Earth Cyanides. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 28, 1927.

A mixture of alkali cyanide and an alkaline earth salt, the corresponding alkali salt of which is soluble in ammonia, is treated with ammonia. Thus, sodium cyanide and calcium nitrate are treated with liquid ammonia to obtain sodium nitrate and an ammonia-calcium cyanide compound from which ammonia is liberated by heat.

303,123. Dyes. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 28, 1927.

1 : 4-Dihalogen-8-aroylnaphthalenes or their substitution products are treated with alkaline condensing agents in the presence of diluents, to obtain vat dyes of the isoviolanthrone series. The halogen-aroylnaphthalenes are obtained as described in specification 301,311.

303,176. Ethylene Derivatives. Compagnie de Bethune, Bully-les-Mines, Pas-de-Calais, France. International Convention date, December 29, 1927.

Ethyl alcohol, glycol, ether, etc., are obtained by separating ethylene and ethane from coal distillation gases, absorbing the ethylene in sulphuric acid, heating the ethane to produce ethylene and hydrogen, returning these to the coal gas to recover the ethylene, and treating the ethyl hydrogen sulphate to obtain the desired product. The ethylene and ethane are separated from the coal gas by liquefaction.

LATEST NOTIFICATIONS.

306,105. Process for obtaining concentrated volatile aliphatic acids. Holzverkohlungs-Industrie Akt.-Ges. February 16, 1928.
306,385. Process for obtaining bornyl and isobornyl ethers. Schmidt, L. February 18, 1928.
306,387. Process for obtaining bornyl and isobornyl ethers. Schmidt, L. February 18, 1928.
306,116. Manufacture and production of wetting, cleansing, emulsifying, and dispersing agents. I.G. Farbenindustrie Akt.-Ges. February 17, 1928.
306,125. Manufacture of cellulose ethers. Wacher Ges. Für Elektro-Chemische Industrie Ges., Dr. A. February 17, 1928.
306,132. Manufacture of organic acid esters of cellulose. I.G. Farbenindustrie Akt.-Ges. February 17, 1928.
306,138. Continuous process for preparing normal butyl alcohol and acetone by fermentation. Commercial Solvents Corporation. February 17, 1928.
305,999. Process for welding and heating metals and alloys. I.G. Farbenindustrie Akt.-Ges. February 13, 1928.
306,046. Production of alkali nitrates. Jost, F. February 14, 1928.
306,097. Process for the manufacture of aliphatic carboxylic acids from aqueous solutions thereof. I.G. Farbenindustrie Akt.-Ges. February 15, 1928.
306,153. Process for the dyeing of viscose. I.G. Farbenindustrie Akt.-Ges. February 17, 1928.
306,414. Manufacture of hydrogenated amines. I.G. Farbenindustrie Akt.-Ges. February 18, 1928.
306,415. Manufacture of azo-dyestuffs. I.G. Farbenindustrie Akt.-Ges. February 18, 1928.

Specifications Accepted with Date of Application

272,930. Synthesis of ammonia. G. F. Uhde. December 28, 1927.
279,815. Vulcanising rubber, Processes for. Naugatuck Chemical Co. November 1, 1926.
281,337. Hydrocarbons, Treatment of—with liquid sulphur dioxide. Allgemeine Ges. für Chemische Industrie. November 26, 1926.
281,690. Arsenobenziminazolones, Manufacture of. I.G. Farbenindustrie Akt.-Ges. December 2, 1926.
287,133. Nitrogen, Recovery of—from liquors. Kali-Industrie Akt.-Ges., C. T. Thorsell, and A. Kristensson. March 16, 1927.
287,858. Substituted thioglycollic acids, Manufacture of. I.G. Farbenindustrie Akt.-Ges. March 24, 1927. Addition to 281,290 and 287,178.
292,995. Ammonium sulphate, Production of. Soc. Anon. des Fours à Coke Semet-Solvay and Piette. June 29, 1927. Addition to 262,320.
290,189. Vessels having an acidproof lining. I.G. Farbenindustrie Akt. Ges. May 9, 1927. Addition to 283,964.
293,353. Electrolytic apparatus for refining aluminium and for like purposes. Soc. Anon. Compagnie de Produits Chimiques et Electro-Metallurgiques Alais, Forges, et Camargue. July 4, 1927.
293,392. Alumina, Process for manufacturing and purifying. J. C. Seailles. July 5, 1927.
294,889. Aromatic oxy-aldehydes, Manufacture of. I.G. Farbenindustrie Akt.-Ges. July 30, 1927.
298,537. Accelerators for vulcanising rubber, Processes for producing, and products obtained thereby. Naugatuck Chemical Co. November 1, 1926.
299,020–1. Liquid and other hydrocarbons and derivatives thereof, Manufacture of—by the destructive hydrogenation of carbonaceous materials. I.G. Farbenindustrie Akt.-Ges. August 7, 1926.
305,494. Obtaining bodies of the ortho-dioxybenzene series and treatment of ammonia liquor. H. W. Robinson and D. W. Parkes. August 5, 1927.
305,498. Solid diazo-azo compounds, Manufacture of. O. Y. Imray. (*I.G. Farbenindustrie Akt.-Ges.*) October 28, 1927.
305,507. Hexahydro-aniline, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) November 5, 1927.
305,603. Hydrocarbon derivatives, Manufacture of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) October 6, 1927.
305,712. Chromium compounds from chromium ores, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) November 10, 1927.
305,753. Catalytic processes. A. Hurter. December 7, 1927.
305,754. Acenaphthene derivatives, Manufacture of. G. T. Morgan and H. A. Harrison. December 8, 1927.
305,760. Fertilisers. R. E. Slade and Imperial Chemical Industries, Ltd. December 13, 1927.
305,763. Oxy-diaryl-ketones, Manufacture of. O. Y. Imray. (*I.G. Farbenindustrie Akt.-Ges.*) December 16, 1927.
305,816. Catalyst for hydrocyanic acid production. T. Ewan and Imperial Chemical Industries, Ltd. February 10, 1928.
305,599. Alumina, sodium carbonate, and hydrochloric acid, Production of. N. J. Gareau. August 3, 1927.
305,860. Hydrogen cyanide from cyanides of the alkali metals. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) March 23, 1928.

Applications for Patents

Baum, G., and Deutsche Gold-und Silber Scheideanstaldt vorm. Roessler. Obtaining hydrogen peroxide by distillation. 5,651. February 20.
Brightman, R., and Imperial Chemical Industries, Ltd. Dyes. 5,804. February 21.
British Cyanides Co., Ltd. Manufacture of synthetic resinous products, etc. 5,783. February 21.
Bunn, C. W., and Imperial Chemical Industries, Ltd. Manufacture of ammonium chloride crystals. 5,971. February 23.
Coley, H. E. Extraction of volatile metals from ores, etc. 5,765. February 21.
Coley, H. E. Reduction of ores, etc. 5,886, 5,888. February 22.
Coley, H. E. Separation of metals from ores, etc. 5,887. February 22.
Coley, H. E. Manufacture of zinc oxide. 5,889. February 22.
Curlewis, R. D. Manufacture of ammonium and magnesium salts. 5,432. February 18.
Drescher, H. A. E., Scottish Dyes, Ltd., and Thomas, J. Anthraquinone derivatives. 5,815. February 21.
Ellis, G. B., and Soc. des Usines Chimiques Rhône-Poulenc. Manufacture of organic esters. 5,557. February 19.
Guillissen, J., and Union Chimique Belge Soc. Anon. Production of ammonium phosphates. 5,876. February 22.
Haddock, N. H., Imperial Chemical Industries, Ltd., and Perkin, A. G. Manufacture of vat dyes. 5,560. 5,561. February 19.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of carbonic acid esters. 5,377. February 18.
I.G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of aryl-fatty acids, etc. 5,516. February 19.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of condensation products containing nitrogen. 5,901. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of butadiene. 5,902. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of butylene from ethylene. 5,903. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Conversion of hydrocarbons. 5,904. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of ethylene. 5,905. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of mixtures of nitrogen and hydrogen. 5,906. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of ketones. 5,907. February 22.
I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of valuable products from gaseous unsaturated hydrocarbons, etc. 6,018. February 23.
I.G. Farbenindustrie Akt. Ges. and Johnson, J. Y. Production of lacquers, etc. 6,019. February 23.
I.G. Farbenindustrie Akt.-Ges. Process of producing pure benzoic acid. 5,374. February 18. (Germany, March 5, 1928.)
I.G. Farbenindustrie Akt.-Ges. Production of pure benzoic acid. 5,375. February 18.
I.G. Farbenindustrie Akt.-Ges. Production of intaglio printing colours. 5,376. February 18. (Germany, March 15, 1928.)
I.G. Farbenindustrie Akt.-Ges. Manufacture of hydrogenated amines. 5,415. February 18. (Germany, February 18, 1928.)
I.G. Farbenindustrie Akt.-Ges. Manufacture of azo-dyestuffs. 5,416. February 18. (Germany, February 18, 1928.)
I.G. Farbenindustrie Akt.-Ges. Manufacture of highly-active absorption carbon. 5,643. February 20. (Germany, February 21, 1928.)
I.G. Farbenindustrie Akt.-Ges. Manufacture of mercapto benzothiazoles. 5,781. February 21. (Germany, February 21, 1928.)
I.G. Farbenindustrie Akt.-Ges. Manufacture of 2-mercapto-arylenethiazole compounds. 6,035. February 23. (Germany, February 23, 1928.)
Imperial Chemical Industries, Ltd. Electrodes for arc welding. 5,403. February 18.
Imperial Chemical Industries, Ltd., Lawrie, L. G., and Blackshaw, H. Apparatus for examination of dyed material in artificial light. 5,423. February 18.
Imperial Chemical Industries, Ltd. Cellulose products. 5,659. February 20.
Imperial Chemical Industries, Ltd., Stephenson, H. P., and Tate, W. R. Hydrogenation of coal, etc. 5,693, 5,694, 5,695, 5,696. February 21.
Irwin, J., Marks, Sir G. C., and Monk, R. H. Production of amphoteric hydrated oxides of metals by hydrolysis. 5,384. February 18.
Metals Protection Corporation. Technically pure chromium trioxide. 5,429. February 18. (United States, March [illegible], 1928.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder. £21 per ton. (Packed in 2 cwt. bags carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall. pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex-wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 6¾d. per lb. Crude 60's, Feb./Mar., 1s. 10½d. per gall.

ACID CRESYLIC 99/100.—2s. 5d. to 2s. 10d. per gall. 97/99.—2s. 2d. to 2s. 3d. per gall. Pale, 95%, 1s. 11d. to 2s. per gall. Dark, 1s. 9d. to 1s. 10d.

ANTHRACENE.—A quality, 2d. to 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—7¾d. to 8d. per gall. Unstrained, 7¼d. to 7½d. per gall.

BENZOLE.—Prices at works: Crude, 10d. to 11d. per gall.; Standard Motor, 1s. 5d. to 1s. 6d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall; Pure, 1s. 10d. to 1s. 11d. per gall.

TOLUOLE.—90%, 1s. 5d. to 1s. 9d. per gall. Firm. Pure, 1s. 10d. to 2s. 2d. per gall.

XYLOL.—1s. 3d. to 1s. 11d. per gall. Pure, 1s. 6d. to 1s. 7d. per gall.

CREOSOTE.—Cresylic, 20/24%, 8¾d. per gall.; Heavy, 7d. to 7¼d. per gall. Middle oil, 5¾d. to 6¼d. per gall. Standard specification, 5¼d. to 5½d. per gall. ex works. Salty, 7¼d. per gall.

NAPHTHA.—Crude, 8½d. to 9d. per gall. Solvent, 90/160, 1s. 1½d. to 1s. 2½d. per gall. Solvent, 95/160, 1s. 2d. to 1s. 6d. per gall. Solvent 90/190, 11d. to 1s. 3d. per gall.

NAPHTHALENE, CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed, £5 per ton. Hot pressed, £8 10s. per ton.

NAPHTHALENE.—Crystals, £12 5s. to £14 10s. per ton. Quiet Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 33s. 6d. to 35s. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 4s. 3d. to 6s. 6d. per gall. 90/180, 2s. 3d. to 3s. per gal. Heavy, 1s. 9d. to 2s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 8½d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5¼d. per lb.

m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.

p-CRESOL 32/34° C.—2s. 3d. to 2s. 6d. per lb.

DICHLORANILINE.—1s. 10d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—8d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 7½d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8d. per lb.

p-TOLUIDINE.—1s. 9d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.

N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 15s. to £10 5s. per ton. Grey, £16 10s. to £17 10s. per ton. Liquor, 9d. per gall.

ACETONE.—£78 per ton.

CHARCOAL.—£6 to £8 10s. per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10½d. per gall. 16° Tw.

WOOD CRESOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 8d. to 3s. 11d. per gall. Solvent, 4s. to 4s. 3d. per gall.

WOOD TAR.—£3 10s. to £4 10s. per ton.

BROWN SUGAR OF LEAD.—£38 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 3d. per lb. according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£5 10s. to £7 per ton, according to quality.

CADMIUM SULPHIDE.—5s. to 6s. per lb.

CARBON BISULPHIDE.—£25 to £27 10s. per ton, according to quantity

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £54 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—4⅜d. to 5⅞d. per lb.

LAMP BLACK.—£32 10s. per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPHONE, 30%.—£23 per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£10 to £12 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B. P.—£55 to £60 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. 10d. to 7s. per lb.

ZINC SULPHIDE.—8d. to 11d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 3d. to 2s. 5d. per lb.

ACID, BENZOIC, B.P.2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 6d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carraige paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—2s. 1d. to 2s. 2d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.
ACID, SALICYLIC, B.P. PULV.—1s. 6d. to 1s. 7d. per lb. Technical.—10½d. to 11½d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 4½d. per lb., less 5%.
ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.
AMIDOL.—7s. 6d. to 9s. per lb., d/d.
AMIDOPYRIN.—7s. 9d. to 8s. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.
AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.
ATROPHINE SULPHATE.—9s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. to 3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. per lb.
BISMUTH CITRATE.—9s. 3d. per lb.
BISMUTH SALICYLATE.—8s. 9d. per lb.
BISMUTH SUBNITRATE.—8s. 3d. per lb.
BISMUTH NITRATE.—Cryst. 5s. 9d. per lb.
BISMUTH OXIDE.—12s. 3d. per lb.
BISMUTH SUBCHLORIDE.—10s. 9d. per lb.
BISMUTH SUBGALLATE.—7s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W Qts. 11d. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Ammonium, 2s. to 2s. 3d. per lb.; potassium, 1s. 8½d. to 1s. 11½d. per lb.; sodium, 1s. 11d. to 2s. 2d. per lb.; granulated, ½d. per lb. less; all spot. Large quantities at lower rates.
CALCIUM LACTATE.—B.P., 1s. 2½d. to 1s. 3d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 5½d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—11d. to 1s. per lb., according to quantity other gravities at proportionate prices.
FORMALDEHYDE, 40%.—37s. per cwt., in barrels, ex wharf.
GUAIACOL CARBONATE.—4s. 6d. to 4s. 9d. per lb.
HEXAMINE.—1s. 11d. to 2s. 2d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 2s. 9d. per lb.; potassium, 3s. per lb.; sodium, 2s. 11d. per lb., in 1 cwt. lots, assorted.
IRON AMMONIUM CITRATE.—B.P., 2s. 8d. to 2s. 11d. per lb. Green, 3s. 1d. to 3s. 4d. per lb.; U.S.P., 2s. 9d. to 3s. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8¾d. to 9¼d. per oz., according to quantity.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.
MENTHOL.—A.B.R. recrystallised B.P., 23s. per lb. net; Synthetic, 11s. to 12s. per lb.; Synthetic detached crystals, 11s. to 16s. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph, B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 3d. to 1s. 6d. per lb.
METHYL SULPHONAL.—8s. 9d. to 9s. per lb.
METOL.—9s. to 11s. 6d. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—2s. 5d. to 2s. 8d. per lb.
PHENAZONE.—3s. 9d. to 4s. per lb.
PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—96s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 2s. 6d. to 2s. 9d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.
RESORCIN.—2s. 10d. to 3s. per lb., spot.
SACCHARIN.—47s. per lb.; in quantity lower.
SALOL.—2s. 3d. to 2s. 6d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911.—2s. 3d. to 2s. 6d. per lb., B.P.C. 1923—2s. 8d. to 2s. 9d. per lb. U.S.P., 2s. 6d. to 2s. 9d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 100s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 6½d. to 1s. 7d. per lb. Crystal, 1s. 7d. to 1s. 8d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10s. to 1s. 1d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 6d. to 6s. 9d. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.
THYMOL.—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 12s. 6d. per lb.

Perfumery Chemicals

ACETOPHENONE.—6s. 6d. per lb.
AUBEPINE (EX ANETHOL).—11s. per lb.
AMYL ACETATE.—2s. 6d. per lb.
AMYL BUTYRATE.—4s. 6d. per lb.
AMYL SALICYLATE.—2s. 9d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 3d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 10d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 10d. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 3d. per lb.
CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.
COUMARIN.—8s. 6d. per lb.
CITRONELLOL.—10s. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. per lb.
ETHYL PHTHALATE.—2s. 9d. per lb.
EUGENOL.—14s. per lb.
GERANIOL (PALMAROSA).—22s. per lb.
GERANIOL.—6s. 6d. to 10s. per lb.
HELIOTROPINE.—4s. 9d. to 5s. per lb.
ISO EUGENOL.—16s. per lb.
LINALOL.—Ex Bois de Rose, 13s. per lb. Ex Shui Oil, 9s. 3d. per lb.
LINALYL ACETATE.—Ex Bois de Rose, 17s. per lb. Ex Shui Oil Linalol. 10s. per lb.
METHYL ANTHRANILATE.—8s. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—34s. per lb.
MUSK XYLOL.—7s. per lb.
NEROLIN.—3s. 9d. per lb.
PHENYL ETHYL ACETATE.—11s. per lb.
PHENYL ETHYL ALCOHOL.—10s. per lb.
RHODINOL.—48s. per lb.
SAFROL.—1s. 10d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN.—18s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 9s. 6d. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—23s. per lb.
BOURBON GERANIUM OIL.—21s. per lb.
CAMPHOR OIL.—1s. per lb.
CANANGA OIL, JAVA.—12s. per lb.
CINNAMON OIL LEAF.—7s. 9d. per oz.
CASSIA OIL, 80/85%.—6s. per lb.
CITRONELLA OIL.—Java, 2s. 2d. per lb., c.i.f. U.K. port. Ceylon, pure, 1s. 10½d. per lb.
CLOVE OIL (90/92%).—11s. 6d. per lb.
EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.—2s. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, 17s. 6d. per lb.
LEMON OIL.—16s. per lb.
LEMONGRASS OIL.—4s. per lb.
ORANGE OIL, SWEET.—25s. per lb.
OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.
PALMA ROSA OIL.—13s. per lb.
PEPPERMINT OIL.—English, 87s. 6d. per lb.; Wayne County, 15s. 6d. per lb.; Japanese, 7s. per lb.
PETITGRAIN.—9s. 3d. per lb.
SANDALWOOD.—Mysore, 28s. per lb.; 90/95%, 18s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, February 28, 1929.

THERE has been a fair amount of activity in the chemical market during the past week, and calls on contracts appear to be up to normal. Prices continue exceptionally steady with one or two imported products rather in short supply, the severe weather having interrupted the manufacture and transport. Export trade continues fairly satisfactory.

General Chemicals

ACETONE.—There has been a fair enquiry and prices continue to hold firm at £77–£85 per ton, the market still carrying only small quantities.

ACETIC ACID.—A steady business has been transacted, and price is without change at £36 10s. per ton for 80% technical and £37 10s. per ton for 80% pure edible.

ACID CITRIC.—Demand continues slow, although price is, if anything, a little firmer. Current prices range from 2s. 1d. to 2s. 3d. per lb., less 5%, and the forward position is somewhat uncertain.

ACID FORMIC.—Demand has been somewhat slower than of late, and price is unchanged at £43 10s. for 85%.

ACID LACTIC.—There has been a better demand and price rules firm at £43 per ton for 50% wt.

ACID OXALIC.—Market is very strong with demand active. Current prices rule from £30 10s. to £32 10s. per ton, according to quantity.

ACID TARTARIC.—Demand is rather slow, although price is inclined to be a little firmer. Present price about 1s. 4½d. per lb., less 5%, with the forward position firm.

AMMONIUM CHLORIDE.—Sibstantial business has been placed, and one or two qualities are in rather short supply. Price is firmer.

ALUMINA SULPHATE.—The market is extremely firm, with supplies continuing short for near delivery. Price firm at about £7 10s. to £8 per ton.

ARSENIC.—No improvement in the demand can be reported, and price is a shade easier at about £16 5s. per ton, f.o.r. mines.

BARIUM CHLORIDE.—This product continues a bright market, with price higher at £11 10s. to £12 per ton, and early delivery is rather difficult. The forward position shows further firmness.

CREAM OF TARTAR.—There is only a small inquiry for spot supplies, and price is unchanged at £93–£97 per ton for B.P. 99/100% quality, according to quantity. The forward position is firm, and with any increase in the demand price is quite likely to advance.

COPPER SULPHATE.—With the continued firmness of the metal, the sulphate is holding a firm position at about £28 per ton. Inquiry is brisk.

FORMALDEHYDE.—A much brisker business has been transacted and the demand is expanding. Price is firming, and although no change has yet occurred in the spot price, which holds firm at £39 per ton, the forward position certainly indicates slightly higher prices.

LEAD ACETATE.—There has been a brisk demand owing to the firmness of the market, current prices for white being £42 10s. per ton, and brown £41 10s. per ton.

LEAD NITRATE.—A small business has been put through at £36 per ton, carriage paid.

LIME ACETATE.—The scarcity of the grey quality is still in evidence, and as a result price is firm at £18 per ton.

LITHOPONE.—Unchanged at £19 15s. to £22 per ton.

METHYL ACETONE.—In quite good demand at £58–£60 per ton, according to quality.

POTASSIUM CARBONATE AND CAUSTIC.—Unchanged, with only a small trade passing.

POTASSIUM CHLORATE.—Slightly firmer at £28–£30 per ton.

PERMANGANATE OF POTASH.—Unchanged at the firm figure of 5½d. per lb., with the product in better demand.

POTASSIUM PRUSSIATE.—Market is extremely firm at £63 10s. to £65 10s. per ton, according to quantity, at which figure substantial business is passing.

SODIUM ACETATE.—First-class crystal quality continues firm at £21 5s. to £22 5s. per ton, and the market is inclined to be on the short side. The forward position is extremely firm.

SODIUM BICHROMATE.—Firm at 3½d. per lb., with rebates for contracts, and in good request.

SODIUM CHLORATE.—More business being done at about £25 per ton.

SODIUM HYPOSULPHITE.—Unchanged and in fair request

SODIUM NITRITE.—Firm at £20 per ton, with inquiry fair.

SODIUM PHOSPHATE.—A fair trade is passing at about £12 per ton for dibasic and £17 per ton for tribasic.

SODIUM PRUSSIATE.—There is no change in this article, there being a fair demand at the firm rates of 4½d. and 5½d. per lb., according to quantity.

SODIUM SULPHIDE.—Steady trade is passing at British makers' prices, which are unchanged.

TARTAR EMETIC.—Small trade is being done at 10½d. per lb.

ZINC SULPHATE.—Firmer and in better request at £12 5s. per ton.

Coal Tar Products

The market for coal tar products is rather quiet, and there is little change in prices to report from last week.

MOTOR BENZOL remains scarce, at about 1s. 7½d. to 1s. 8d. per gallon, f.o.r. makers' works.

SOLVENT NAPHTHA iw unchanged at 1s. 1½d. per gallon, f.o.r.

HEAVY NAPHTHA is quoted at 1s. 1d. to 1s. 1½d. per gallon on rails.

CREOSOTE OIL is weaker, and can be bought at 4¾d. per gallon on rails in the north and at 5¾d. per gallon in London.

CRESYLIC ACID remains weak, the 98/100% quality being quoted at about 1s. 10d. per gallon, and the dark quality 95/97% at about 1s. 8d. per gallon, f.o.r.

NAPHTHALENE.—The firelighter quality is quoted at about £4 10s. per ton, the 74/76 quality at £5 per ton, and the 76/78 quality at £6 to £6 5s. per ton.

PITCH is weaker, at 31s. to 33s. per ton, f.o.b.

Nitrogen Products

Sulphate of Ammonia.—The demand for sulphate of ammonia continues satisfactory, and the price remains firm at £10 2s. per ton, f.o.b., U.K. port, in single bags. We understand that the movement of sulphate of ammonia on the Continent has been unusually heavy and that in the United States heavy deliveries are being made.

Home.—Despite the inclement weather, merchants in several parts of the country report that large orders for sulphate of ammonia at the fixed prices are coming in quite satisfactorily. It is understood that all the works in the South of England are kept busy delivering current requirements.

Nitrate of Soda.—Quite satisfactory sales are being made, but the stocks in European countries show little diminution. It is anticipated, however, that the months of March and April will show a very large move out of the product.

Latest Oil Prices

LONDON, February 27.—LINSEED OIL was steady. Spot, ex mill, £30 10s.; March and March-April, £29 5s.; May-August, £29 7s. 6d.; and September-December, £29 17s. 6d. RAPE OIL was quiet. Crude, extracted, £42 10s.; technical, refined, £44 10s., naked, ex wharf. COTTON OIL was steady. Egyptian, crude, £28 10s.; refined common edible, £34; and deodorised, £36, naked, ex mill. TURPENTINE was firm but slow at 6d. per cwt. advance. American, spot, 45s. 6d.; March-April and May-June, 45s. 9d.

HULL.—LINSEED OIL.—Spot to March-April, £29 2s. 6d.; May-August, £29 7s. 6d.; September-December, £29 15s. per ton, naked. COTTON OIL.—Bombay crude, spot, £27 10s.; Egyptian crude, spot (new and February-April, £28 5s.; edible refined, spot and February-April, £31 15s.; technical, spot, £31 10s.; deodorised, spot, £33 15s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £36 5s. per ton. GROUNDNUT OIL.—Crushed-extracted, £36; deodorised, £40 per ton. SOYA OIL.—Extracted, £31; deodorised, £34 10s. per ton. RAPE OIL.—Crushed-extracted, £42 10s.; refined, £44 10s. per ton. TURPENTINE.—Spot, 47s. 6d. per cwt., net cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

South Wales By-Products

THE better tendency in South Wales by-product activities is maintained. The general inquiry is better, while more business has been done. Pitch is unchanged round the 33s. to 36s. per ton mark, and has a steady, if moderate, demand. Road tar is in slightly better demand, but values are unchanged at from 11s. to 15s. per 40 gallons barrel. Crude tar has only a small demand at about 30s. to 32s. per ton, producer's works. Solvent naphtha maintains its brighter tone, with prices steady round the 1s. 2d. to 1s. 4d. per gallon mark, but heavy naphtha is slow and weak at about 1s. per gallon. Refined tars are unchanged, and have a moderate demand. Coke oven tar is quoted round the 7d. to 7¾d. per gallon, delivered, and gasworks tar at from 6¼d. to 7d. per gallon, delivered. Crude naphthalene has only a small call round about 80s. per ton, while a similar remark applies to whizzed at the 100s. per ton mark. Patent fuel and coke exports continue to be on the slow side, and values are unchanged. Patent fuel, ex-ship Cardiff, from 21s. to 21s. 6d. per ton; ex-ship Swansea, 19s. to 19s. 3d. per ton; coke, best foundry, 32s. 6d. to 36s. 6d.; good foundry, 26s. 6d. to 32s.; and furnace from 19s. to 21s. per ton.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, February 27, 1929.

SINCE our last report the heavy chemical market has not shown any appreciable improvement and prices remain practically unchanged.

Industrial Chemicals

ACETONE, B.G.S.—£77 10s. to £85 per ton, ex wharf, according to quantity. There is still little available for immediate delivery.

ACID ACETIC, 98/100%.—Glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton. Powder, £32 per ton, packed in bags, carriage paid, U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Unchanged at 6½d. per lb., delivered or f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Quoted 2s. 2½d. per lb., less 5%, ex store, spot delivery. Offered at 2s. 2¼d. per lb., less 5%, ex wharf, prompt shipment from the Continent.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality 4s. per carboy. Dearsenicated quality 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80° quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Spot material quoted 3½d. per lb. Offered for prompt shipment from the Continent at about 3¼d. per lb., ex wharf.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality, £5 15s. per ton for 168° quality. Dearsenicated quality, 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—On offer at £5 10s. per ton, c.i.f. U.K. ports. Spot material quoted £5 15s. per ton, ex store.

ALUM, LUMP POTASH.—Unchanged at about £8 12s. 6d. per ton, c.i.f. U.K. ports. Crystal meal offered on spot at £9 per ton, ex store.

AMMONIA, ANHYDROUS.—Quoted 9½d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton; powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID 880°.—Unchanged at about 2½d. to 3d. per lb. delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton c.i.f. U.K. ports.

ANTIMONY OXIDE.—Rather cheaper and offered for prompt shipment from China at £35 per ton, c.i.f. U.K. ports. Spot material unchanged at £39 per ton, ex store.

ARSENIC, WHITE POWDERED.—Quoted £18 10s. per ton, ex wharf, prompt despatch from mines. Spot material on offer at £19 15s. per ton, ex store.

BARIUM CHLORIDE.—On offer from the Continent at £10 5s. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers contract price to consumers unchanged at £6 12s. 6d. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers price £4 5s. to £4 15s. per ton, according to quality and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports.

COPPER SULPHATE.—Steady, and price about £25 15s. per ton, ex wharf.

FORMALDEHYDE, 40%.—Good inquiry and price unchanged at about £37 10s. per ton, ex store.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 5s. per ton, ex wharf.

LEAD, RED.—On offer at £29 15s. per ton, ex store.

LEAD, WHITE.—Quoted £37 10s. per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted £41 10s. per ton. Brown on offer about £39 10s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64 O.P., quoted 1s. 4d. per gallon, less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4¼d. per lb. delivered U.K. or c.i.f. Irish ports with an allowance of 2½% for minimum 2½ tons to be taken.

POTASSIUM CARBONATE 96/98%.—Offered from the Continent £25 10s. per ton, c.i.f. U.K. Spot material quoted £26 10s. per ton, ex store.

POTASSIUM CHLORATE 99¾/100%.—Spot material now quoted; powdered, £25 per ton, ex wharf. Rather cheaper to come forward.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Offered for prompt shipment from the Continent at 6¾d. per lb., ex wharf. Spot material quoted 7d. per lb., ex store.

SODA CAUSTIC.—Powdered 98/99% now £17 10s. per ton in drums; £18 15s. per ton in casks. Solid, 76/77%, £14 10s. per ton in drums; 70/72%, £14 2s. 6d. per ton in drums, all carriage paid buyers' station, minimum 4-ton lots, for contracts 10s. per ton less.

SODIUM ACETATE.—65% material on offer at about £19 15s. per ton, ex wharf.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—3½d. per lb. delivered U.K. or c.i.f. Irish ports, less 2½% for contract of minimum 2½ tons.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, 27s. 6d. per ton extra. Light soda ash, £7 1s. 3d. per ton, ex quay, minimum 4-ton lots with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots, pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots. Prices for this year unchanged.

SODIUM NITRATE.—Price now £10 10s. per ton, carriage paid buyers' sidings, minimum 6-ton lots, usual extras for small quantities and refined qualities.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, 52s. 6d. per ton delivered for unground quality. Ground quality, 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption. Solid, 60/62%, £9 per ton. Broken, 60/62%, £10 per ton. Crystals, 30/32%, £7 2s. 6d. per ton, delivered buyers' works on contracts, minimum 4-ton lots. Special prices for some consumers. Spot material, 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 10s. per ton; rock, £10 7s. 6d. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE 98%.—British material now quoted £22 10s. per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Offered from the Continent at about £10 5s. per ton, ex wharf.

NOTE.—The above prices are for bulk business, and are not to be taken as applicable to small parcels.

Chemical "Organisation and Co-operation"

AN address on "Organisation and Co-operation" was given in Glasgow on Friday, February 22, to the members of the Scottish section of the British Association of Chemists by Mr. C. S. Garland, vice-president of the Association. The meeting, which was held in the rooms of the Royal Philosophical Society, was presided over by Mr. E. F. Morris. Mr. Garland said that chemists had never taken the position in industrial life which was occupied, for instance, by the great engineering institutions, although numerically, and having regard to what they spent on their organisation, they were entitled to be at least as great. The chemical societies, he said, had a revenue of £54,000 a year, and their invested funds represented something like £190,000. They spread their activities over a wide area, and although the separate activities were really necessary in the present growth of science, they could co-operate and still do their specialised work a great deal more efficiently. Co-operation, he added, must come in the democratic way, through the members themselves; it would never come from their councils. The membership of the chemical societies was over 14,000, and the overlap amongst them was not more than 2,000, so that there was an effective body of 12,000 members, which was greater than any of the existing engineering institutions.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, February 28, 1929.

On the whole a fair weight of business in the principal heavy chemical products, both on forward account and for near date deliveries, has been reported on this market during the past few days, whilst contract deliveries are keeping up pretty well to their recent level. Occasionally one comes across cases where an easier tendency in prices is in evidence, but the market as a whole keeps up well, and in more than one instance values are stiffening.

Heavy Chemicals

A moderate business is going through in bleaching powder, with current offers of this material at round £7 per ton, although parcels are obtainable here and there at below this figure. There is some inquiry about for sulphide of sodium, quotations for which keep at up to £8 per ton for the commercial kind and £9 10s. per ton for the 60–65 per cent. concentrated solid quality. Caustic soda continues to move off in fair quantities, with prices ranging from £12 15s. to £14 per ton, according to quality. With regard to bicarbonate of soda, values are firm at about £10 10s. per ton, with a moderate call on contract account and also for prompt delivery. Alkali is in quietly steady demand at round £6 per ton. Current offers of hyposulphite of soda are at up to £9 10s. per ton for the commercial quality, and £15 10s. per ton for the photographic, though buying interest in this section is not particularly active at the moment. In the case of chlorate of soda, also, sales are on the quiet side, and quotations are rather easy at 2⅝d. to 2¾d. per lb. There is some inquiry about for saltcake and little change in the price situation, values ranging from about £2 12s. 6d. to £2 15s. per ton. Bichromate of soda is well maintained on the basis of 3½d. per lb., and the demand for this material continues on a fairly satisfactory scale. Prussiate of soda, also, is selling in fair quantities, and quotations are firm at from 4½d. to 5¼d. per lb., according to quantity. Phosphate of soda is rather inactive, but at £12 to £12 5s. per ton values are about held.

There has been no apparent improvement in the demand for permanganate of potash, and although little changed on the week prices are on the easy side at 5d. per lb. for the commercial grade and from 5¼d. to 5⅜d. per lb. for the B.P. Yellow prussiate of potash continues firm at from 6¾d. to 7¼d. per lb., according to quantity, and a fair volume of business is being done. A quiet trade is reported in the case of chlorate of potash at round 3d. per lb. Caustic potash is steady and in fair demand on the basis of £33 5s. per ton for prompt delivery of one to five-ton lots. There is a moderate inquiry in the market for bichromate of potash, offers of which are maintained at 4½d. per lb. With regard to carbonate of potash, there is a quietly steady demand for this material at up to £26 5s. per ton, ex store.

Buying interest in the case of arsenic is rather slow, with small parcels changing hands on the basis of about £16 5s. per ton, at the mines, for white powdered, Cornish makes. A fair trade is passing in sulphate of copper, quotations for which continue very firm at up to £28 5s. per ton, f.o.b. The acetates of lime are in quiet request and prices show little change, the grey quality being quoted at about £17 5s. per ton, and the brown at £9. The acetates of lead are also steady although far from brisk, white offering at round £40 per ton, and brown at £39. Nitrate of lead is quiet at up to £35 per ton.

Acids and Tar Products

Tartaric acid keeps very strong so far as prices are concerned at round 1s. 4¼d. per lb., and moderate sales are being made. Citric acid is holding up well at about 2s. 2d. per lb., supplies of this material being far from plentiful. With regard to oxalic acid, inquiry is on the slow side, although quotations are fairly steady at £1 11s. 6d. per cwt. A quietly steady demand is being experienced for acetic acid, with the glacial material at round £66 per ton and the 80 per cent. commercial at £36 10s.

Both pitch and creosote oil among the by-products are slow and easy, with pitch at about £1 12s. per ton, f.o.b., and creosote oil at 4d. per gallon, naked. Solvent naphtha is only in moderate request, but values are held at about 1s. 1½d. per gallon. Sales of crude carbolic acid are on a fair scale at about 1s. 10d. per gallon, naked, with crystal carbolic in good inquiry at 6¼d. per lb., f.o.b.

Company News

Amalgamated Zinc (de Bavay's).—A dividend at the rate of 8 per cent. per annum for the six months ended December 31 last, is payable on April 10.

Oxford and Shipton Cement.—The accounts for the past year show a loss of £10,954, and the surplus brought forward was converted into an adverse balance of £6,656.

United Turkey Red Co.—The directors recommend a final dividend on the ordinary shares, subject to audit, of 7 per cent., less tax, making 10 per cent. for the year ended December 31 last. The sum of £20,000 is placed to general reserve and £44,500 is carried forward.

Joseph Nathan and Co.—The net profit for the year to September 30 last was £61,216, as against £55,474 last year. The dividend of 8 per cent. on the preferred ordinary shares is maintained, £5,000 is placed to reserve and £9,383 is carried forward, against £7,666. Income tax absorbs £3,500.

John Oakey and Sons.—For the past year the net profits were £48,730 and £3,656 was brought forward. A final dividend of 10 per cent. is proposed on the ordinary shares, making 12½ per cent. for the twelve months, transferring £10,000 to the general reserve fund and carrying forward £5,136.

Salt Union.—A dividend of 2s. 6d. per share on the ordinary shares is recommended by the directors for the year ended December 31, 1928, being the same as for 1927. The sum of £25,000 is placed to contingencies reserve, against £35,000 last year, and £23,900 is carried forward, as compared with £36,738 last time.

Torbay Paint Co.—The net profit for the past twelve months is £13,738, which, added to the amount brought forward, makes a total of £14,755. Provision for income-tax takes £1,654, leaving £13,101. The directors recommend a dividend of 15 per cent., less income tax, placing to general reserve £1,000 and carrying forward £2,381.

Sentinel Waggon Works, Ltd.—Resolutions authorising a reduction in capital were carried unanimously at an extraordinary general meeting on February 21. The chairman stated that the reduction was due to the loss entailed in the investment in the "Sentinel" Garden Suburb, Ltd., which was the outcome of the war. The total to be written off was £62,604 6s. 10d., by writing 5s. off 200,000 ordinary shares, representing £50,000, taking £12,000 from the reserve fund, and £604 6s. 10d. from the carry-forward.

Yorkshire Indigo Scarlet and Colour Dyers.—The profits for the year ended December 31, 1928, were £12,413, which, with the profit on sale of investments, £1,902, and amount brought forward, £2,806, gives a disposable balance of £12,548, after deducting debenture interest amounting to £4,573. The directors recommend a dividend of 7½ per cent., less tax, on both preference and ordinary shares, placing £1,000 to reserve fund and carrying forward £4,560. The annual meeting will be held at Leeds on March 11, at 12 noon.

Nitrate Case Concluded

Anglo-German Arbitral Tribunal Delivers Judgment

The Anglo-German Mixed Arbitral Tribunal, on Tuesday, gave its decision in the case of the Salpeterwerke Gildemeister A.-G. (creditors), German nationals, against the firm of Andrew Weir and Co., British nationals, the former claiming interest amounting to £15,000 in respect of consignments of nitrate. The hearing of the cast before the Tribunal was reported in this journal last week (p. 184).

The Tribunal, delivering judgment, did not consider the fact that the bills of lading had not been received by the debtors when they caused delivery of the nitrate to be effected to their sub-purchasers and received from them its value, constituted any bar to the creditors' right to recover in the present proceedings. They therefore declared that there was a debt due from Andrew Weir and Co. to the claimants, within the meaning of Article 296 of the Treaty of Versailles, and directed that interest should be credited by the British Clearing Office to the German at the rate of 5 per cent. per annum as follows: On £17,044 from September 9, 1914, to March 3, 1921; on £13,274 from November 5, 1914, to March 3, 1921; on £8,570 from September 9, 1914, to March 4, 1921; and on £9,615 from November 5, 1914, to March 4, 1921; together with £75 costs.

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Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

DOUBLEX, LTD., 220, Bishopsgate, E.C., soap manufacturers. (C.C., 2/3/29.) £17 3s. 5d. January 24.

HEWITT AND SON, 238, Blackfriars Road, S.E., wholesale chemists. (C.C., 2/3/29.) £46 3s. 1d. January 28.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case, the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

CHEMICAL COMPOUNDS, LTD., Brentford. (M., 2/3/29.) Registered February 12, £50 debenture, to Miss C. G. Gleaves, 9, Paddington Street, W.; general charge. *Nil. September 30, 1927.

VIGZOL OIL REFINING CO. (LONDON), LTD. (M., 2/3/29.) Registered February 12, mortgage, to Bank; charged on Hill Mount, 48, Southport Road, Ormskirk, etc.

London Gazette, &c.

Companies Winding Up Voluntarily

BARRENECHEA NITRATE CO., LTD. (C.W.U.V., 2/3/29.) By Special Resolution, February 6, confirmed February 22. W. J. Welch, 27, Leadenhall Street, London, E.C.3, appointed as liquidator.

DOMINION TAR AND CHEMICAL CO., LTD. (C.W.U.V., 2/3/29.) By Special Resolution, February 4, confirmed February 19. H. F. Kemp, 36, Walbrook, E.C.4, Chartered Accountant, appointed as liquidator. Meeting of creditors at liquidator's office, Friday, March 8, at 12 noon.

Bankruptcy Information

ELLIS, William James, 291, Derby Road, Bootle, paint manufacturer, trading as WILLIAM ELLIS. (R.O., 2/3/29.) Receiving order, February 21. Debtor's petition. First meeting, March 5, 12 noon, Offices of the Official Receiver, Government Buildings, Victoria Street, Liverpool. Public examination, March 26, 10 a.m., Government Buildings, Victoria Street, Liverpool.

Order Made on Application for Discharge

WHITE, Felix Lane, Empire House, St. Martin's-le-Grand, London, E.C., manufacturing chemist. (O.M.A.D., 2/3/29. Discharge suspended for six months until July 29.

New Companies Registered

BROWNLAC, LTD., 19, Basinghall Street, London, E.C.2. Registered as a "public" company on February 22. Nominal capital, £100,000 in 5s. shares. To carry on the business of chemists, druggists, drysalters, oil and colourmen; manufacturers, blenders, and refiners of and dealers in all kinds of shellac, varnishes, pigments, chemicals, gums, etc.

PETROLEUM REFINERIES LTD., 28, Grosvenor Place, London, S.W.1. Registered as a "public" company on February 20. Nominal capital, £470,000 in 700,000 participating ordinary shares of 10s. each and 2,400,000 ordinary shares of 1s. each. To adopt an agreement with Furmanite Engineering Company, Ltd., to acquire any process for refining, separating and purifying mineral, vegetable and other oils; to carry on the business of refiners, producers, storers, suppliers and distributors of petroleum, petroleum products, oils, hydrocarbons and similar products, distillers of coal and coal products, tar manufacturers and recoverers, chemical manufacturers, etc.

THE PARENT COAL CARBONISATION TRUST LTD. Registered as a "public" company on February 20. Nominal capital, £750,000 in 1,200,000 8 per cent. cumulative participating preference shares of 10s. each and 3,000,000 deferred ordinary shares of 1s. each. To adopt agreements with Maisel's Petroleum Trust Ltd., and Fordhams' Trust Ltd., and to acquire rights for the U.K. of Great Britain of a secret process for low temperature carbonisation of coal known as the Aicher Process; to deal with the manufacture of and render saleable, oil, coal, coal tar, pitch and other residual products from coal, to erect and maintain plants, and provide and manufacture machinery for the low temperature carbonisation of coal, and to carry on the business of producers, refiners, storers, suppliers and distributors of petroleum, petroleum products, suppliers of gas, etc. Directors: The Rt. Hon. Lord Askwith, 5, Cadogan Gardens, London; E. Cohen, 10, Cambridge Gate, London, N.W.1; and R. F. M. Scott.

THE QUATERNION CO., LTD., Stafford House, 14-20, King William Street, E.C. The file number is 237,448. Registered as a "private" company on February 25. Nominal capital, £5,000 in £1 shares. To prospect, explore, and work claims or mines, to dig and quarry for ores, minerals, nitrates, coal, earth and other substances, etc. Directors: T. T. Aikman, Charlton Lodge, Charlton, Northamptonshire (director of Aikman (London), Ltd., British and South Pacific Trading Co., Ltd., Chilian Nitrate of Soda Distributors, Ltd., Angela Nitrate Co., Ltd., Tarapaca and Tocopilla Nitrate Co., and Aquas Blancas Nitrate Co., Ltd.); G. E. Korn (director of Chilian Nitrate of Soda Distributors, Ltd.) Hon. A. A. M. Weir (director of British Union Oil Co., Ltd., Nago Shipping Co., Ltd., Bank Line (Basra), Ltd., and partner in Andrew Weir and Co.); and F. Petrinovic (director of Lautaro Nitrate Co., Ltd., Baburizza and Co., Ltd., and Chilian Nitrate of Soda Distributors, Ltd.).

VALENTINE VARNISH AND LACQUER COMPANY, LTD., 42, Seel Street, Liverpool. Registered February 20. Nominal capital, £10,000 in £1 shares. Manufacturers and refiners of and dealers in varnishes, lacquers, paints, oils, solvents, colours, enamels, celluloid, nitro-cellulose, dyestuffs, pigments, collodion products, and all chemical, mineral or similar industrial or natural products.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

BENZOL AND CASTOR OIL.—The Roumanian Ministry of War (Aviation Department) is calling for tenders, to be presented in Bucharest by March 14, for the supply of castor oil and benzol. (Reference No. B.X. 5129.)

ALUMINIUM SALTS.—A Toronto firm is desirous of receiving samples and prices of aluminium salts for use as advertising novelties. (Reference B.X. 5122.)

PAINTS, VARNISHES, SOAP, PITCH, WOOD AND COAL TAR, ETC.—The Egyptian Ports and Lighthouses Administration is calling for tenders, to be presented in Alexandria by March 18, for the supply of the above during the year 1929–30. (Reference B.X. 5120.)

AGENT'S SERVICES OFFERED.—An agent in Bahia (Brazil) is desirous of getting into touch with British exporters of chemicals and drugs. (Reference No. 148.)

OILS AND FATS FOR SOAPMAKING, TANNING MATERIALS.—A firm of commission agents of Santiago is desirous of securing the representation of British firms. (Reference No. 149.)